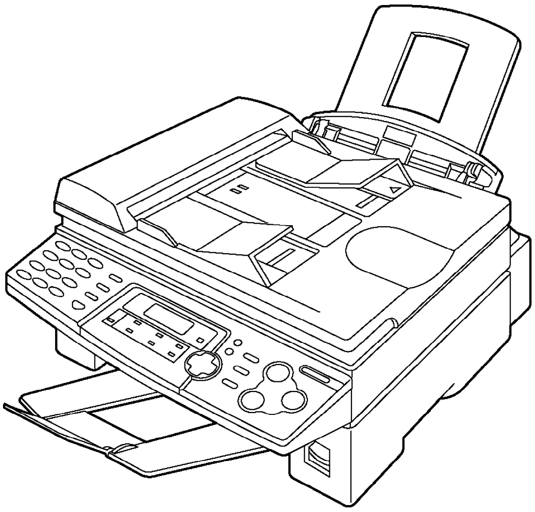
ORDER NO. KMF0309704C3

# Service Manual

## Multi-Function Laser Fax

## KX-FLB756AL

## (for Australia and New Zealand)



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**⚠ WARNING**

This service information is designed for experienced repair technicians only and is not designed for use by the general public.
It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

When you note the serial number, write down all of the 11 digits. The serial number may be found on the bottom of the unit.

Panasonic

## *IMPORTANT INFORMATION ABOUT LEAD FREE, (PbF), SOLDERING*

**If lead free solder was used in the manufacture of this product the printed circuit boards will be marked PbF.**
**Standard leaded, (Pb), solder can be used as usual on boards without the PbF mark.**

**When this mark does appear please read and follow the special instructions described in this manual on the use of PbF and how it might be permissible to use Pb solder during service and repair work.**

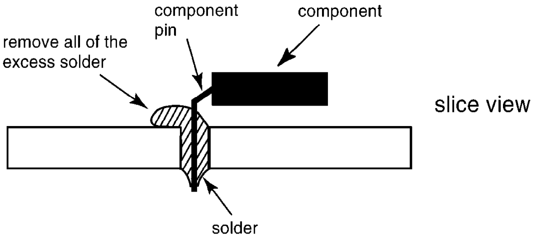
# 1. INTRODUCTION

## 1.1. ABOUT LEAD FREE SOLDER (PbF: Pb free)

**Note:**
**In the information below, Pb, the symbol for lead in the periodic table of elements, will refer to standard solder or solder that contains lead.**
**We will use PbF solder when discussing the lead free solder used in our manufacturing process which is made from Tin, (Sn), Silver, (Ag), and Copper, (Cu).**
**This model, and others like it, manufactured using lead free solder will have PbF stamped on the PCB. For service and repair work we suggest using the same type of solder although, with some precautions, standard Pb solder can also be used.**

Caution

- **PbF solder has a melting point that is 50° ~ 70° F, (30° ~ 40°C) higher than Pb solder. Please use a soldering iron with temperature control and adjust it to 700° ± 20° F, (370° ± 10°C). In case of using high temperature soldering iron, please be careful not to heat too long.**
- **PbF solder will tend to splash if it is heated much higher than its melting point, approximately 1100°F, (600°C).**
- **If you must use Pb solder on a PCB manufactured using PbF solder, remove as much of the original PbF solder as possible and be sure that any remaining is melted prior to applying the Pb solder.**
- **When applying PbF solder to double layered boards, please check the component side for excess which may flow onto the opposite side (See figure, below).**

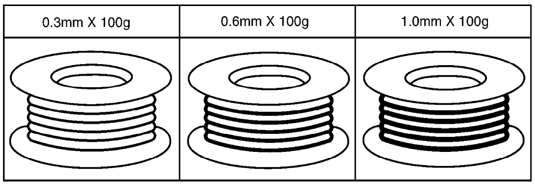


### 1.1.1. SUGGESTED PBF SOLDER

**There are several types of PbF solder available commercially. While this product is**

**manufactured using Tin, Silver, and Copper, (Sn+Ag+Cu), you can also use Tin and Copper, (Sn+Cu), or Tin, Zinc, and Bismuth, (Sn+Zn+Bi). Please check the manufacturer's specific instructions for the melting points of their products and any precautions for using their product with other materials.**

**The following lead free (PbF) solder wire sizes are recommended for service of this product: 0.3mm, 0.6mm and 1.0mm.**



## 1.2. HOW TO RECOGNISE THAT Pb FREE SOLDER IS USED

**P.C.Boards marked as “PbF” use Pb Free solder. (See the figure below.)**
**Pb Free is not used the Power Supply Board of this unit.**
**(Example :Digital board)**

**Note : The “PbF” marked may be found on different areas of the same P.C.Board,depending on manufacture date.**

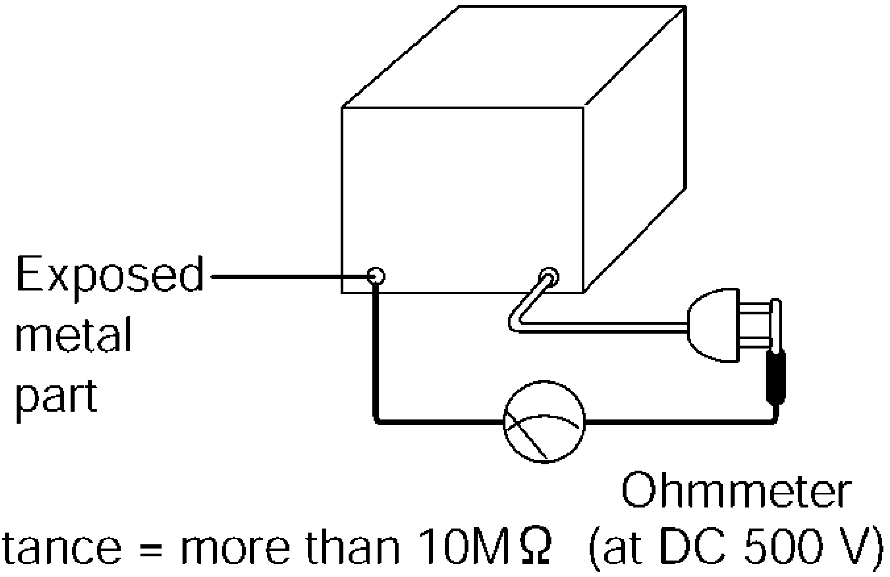
## 1.3. SAFETY PRECAUTIONS

1. **Before servicing, unplug the AC power cord to prevent an electric shock.**
2. **When replacing parts, use only the manufacturer's recommended components.**
3. **Check the condition of the power cord. Replace if wear or damage is evident.**
4. **After servicing, be sure to restore the lead dress, insulation barriers, insulation papers, shields, etc.**
5. **Before returning the serviced equipment to the customer, be sure to perform the following insulation resistance test to prevent the customer from being exposed to shock hazards.**

## 1.4. INSULATION RESISTANCE TEST

1. **Unplug the power cord and short the two prongs of the plug with a jumper wire.**
2. **Turn on the power switch.**

3. Measure the resistance value with an ohmmeter between the jumpered AC plug and each exposed metal cabinet part (screw heads, control shafts, bottom frame, etc.).
   Note: Some exposed parts may be isolated from the chassis by design. These will read infinity.
4. If the measurement is outside the specified limits, there is a possibility of a shock hazard.



## 1.5. FOR SERVICE TECHNICIANS

ICs and LSIs are vulnerable to static electricity.
When repairing, the following precautions will help prevent recurring malfunctions.

1. Cover the plastic part's boxes with aluminum foil.
2. Ground the soldering irons.
3. Use a conductive mat on the worktable.
4. Do not touch the IC or LSI pins with bare fingers.

## 1.6. BATTERY CAUTION

CAUTION

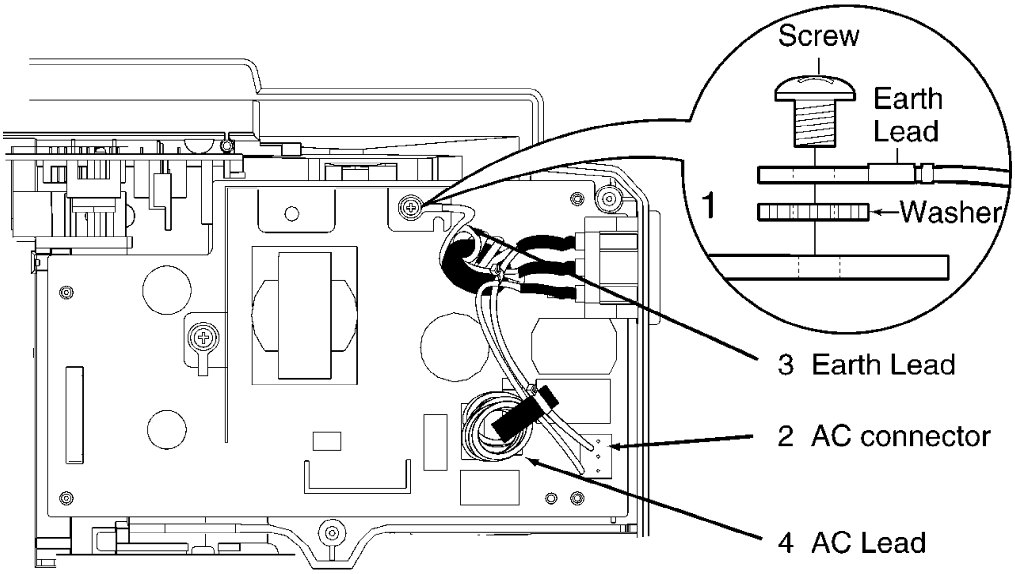
(1)Danger of explosion if the battery is replaced incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose used batteries according to the manufacturer’s intructions:
(2)The lithium battery is a critical component (type No. CR2032).Please observe for the proper polarity and the exact

**location when replacing it and the soldering the replacement litium battery in.**

## 1.7. AC CAUTION

**For safety, before closing the lower cabinet, please make sure of the following precautions.**

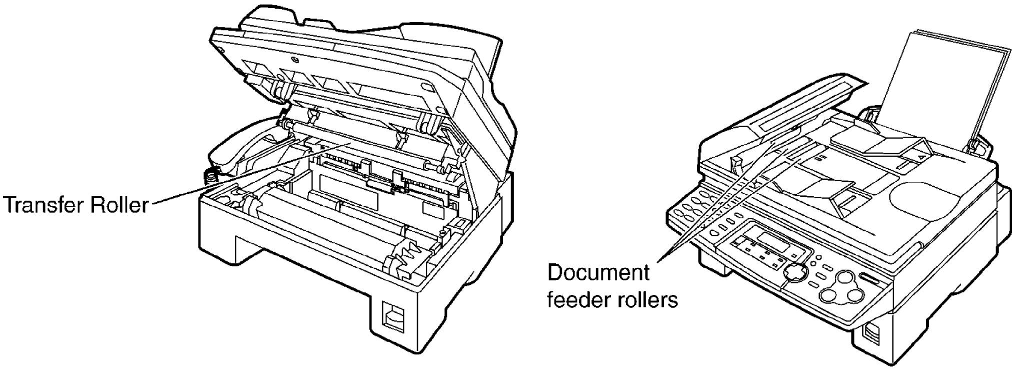
1. **The earth lead is fixed with the screw.**
2. **The AC connector is connected properly.**
3. **Wind the earth lead around the core 5 times.**
4. **Wind the earth AC around the core 4 times.**


Screw
Earth Lead
1
Washer
3 Earth Lead
2 AC connector
4 AC Lead

## 1.8. PERSONAL SAFETY PRECAUTIONS

### 1.8.1. MOVING SECTIONS OF THE UNIT

**Be careful not to let your hair, clothes, fingers, accessories, etc., become caught in any moving sections of the unit.**
**The moving sections of the unit are the rollers and a gear. There is a separation roller and a document feed roller which are rotated by the document feed motor. A gear rotates the two rollers. Be careful not to touch them with your hands, especially when the unit is operating.**

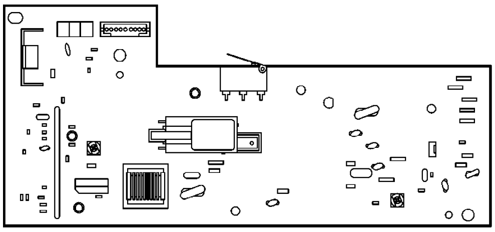

Transfer Roller
Document feeder rollers

### 1.8.2. LIVE ELECTRICAL SECTIONS

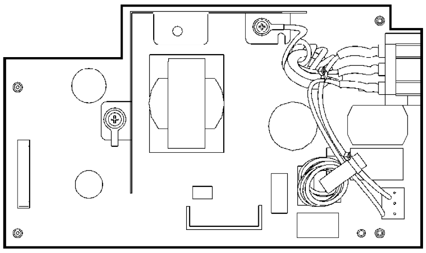
**All the electrical sections of the unit supplied with AC power by the AC power cord are live. Never disassemble the unit for service with the AC power supply plugged in.**

**CAUTION:**

**AC voltage is supplied to the primary side of the power supply unit. Therefore, always unplug the AC power cord before disassembling for service.**



High Voltage Power Supply Board

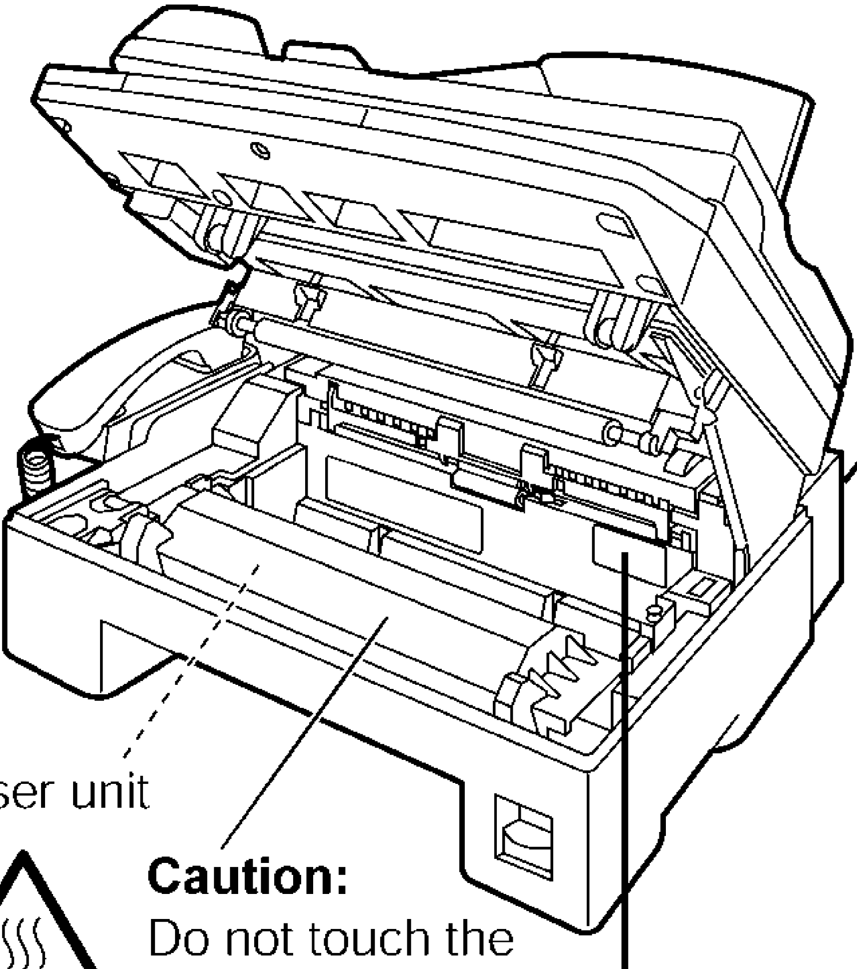


Low Voltage Power Supply Board

### 1.8.3. LASER BEAM AND FUSER UNIT SECTION

- **The printer of this unit utilises a laser. Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.**
- **The fuser unit is inside of the unit and gets hot. Do not touch it when removing the jammed paper or cleaning the lower glass.**

CLASS 1 LASER PRODUCT
KLASSE 1 LASER PRODUKT
CLASSE 1 LASER PRODUIT
CLASE 1 LÁSER PRODUCTO



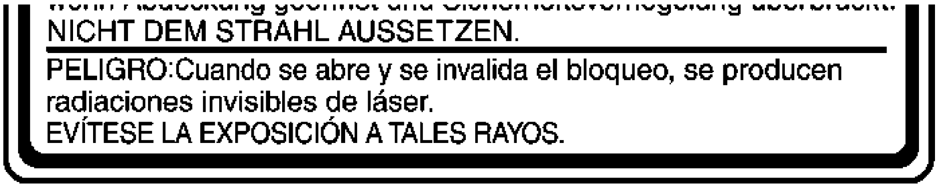
Fuser unit

**Caution:**
Do not touch the
bottom of this cover.
It is very hot.

DANGER:Invisible laser radiation
when open and interlock defeated.
AVOID DIRECT EXPOSURE TO BEAM.

ATTENTION:Rayonnement laser invisible
dangereux en cas d'ouverture et lorsque
la sécurité est neutralisée.
EXPOSITION DANGEREUSE AU FAISCEAU.

VORSICHT:Unsichtbare Laserstrahlung,
wenn Abdeckung geöffnet und Sicherheitsverriegelung überbrückt.



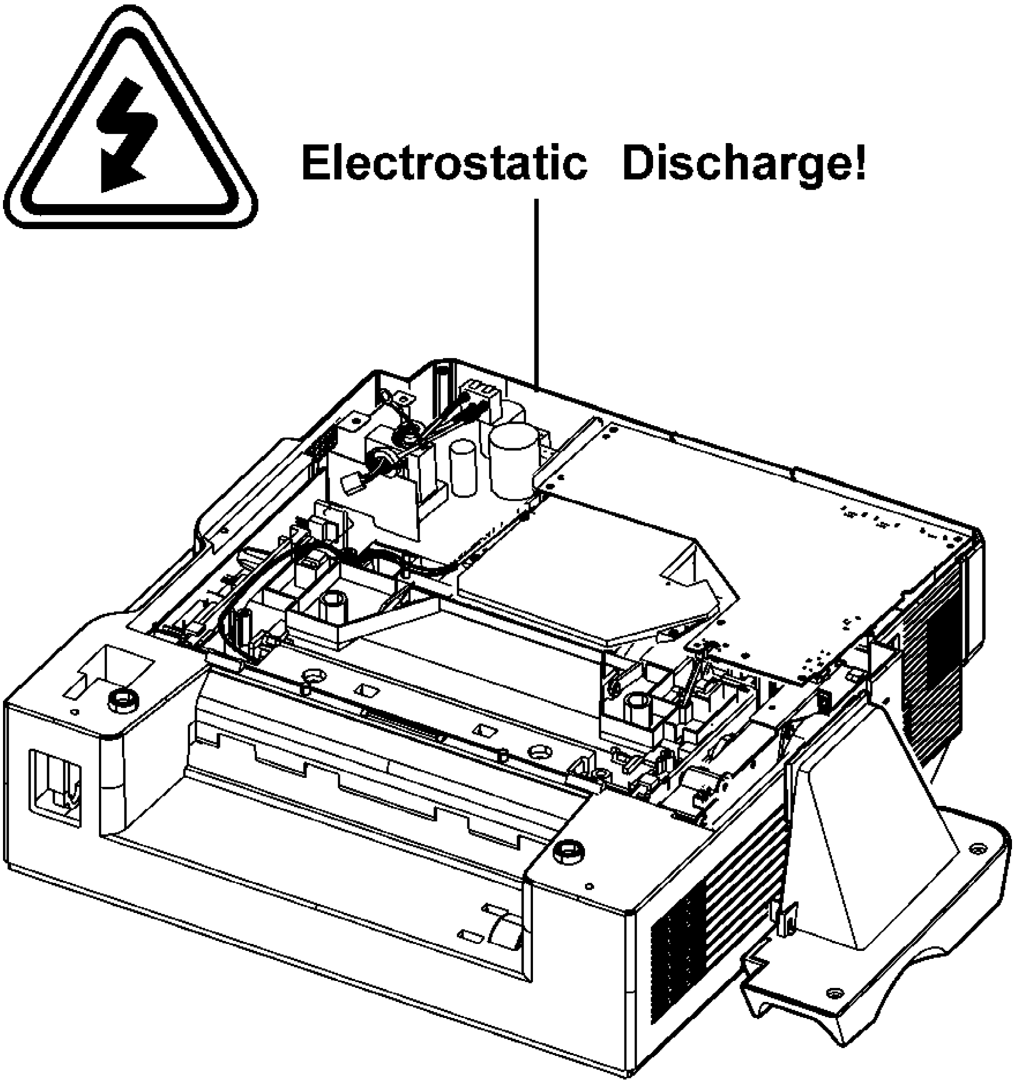
NICHT DEM STRAHL AUSSETZEN.

PELIGRO:Cuando se abre y se invalida el bloqueo, se producen radiaciones invisibles de láser.
EVÍTESE LA EXPOSICIÓN A TALES RAYOS.

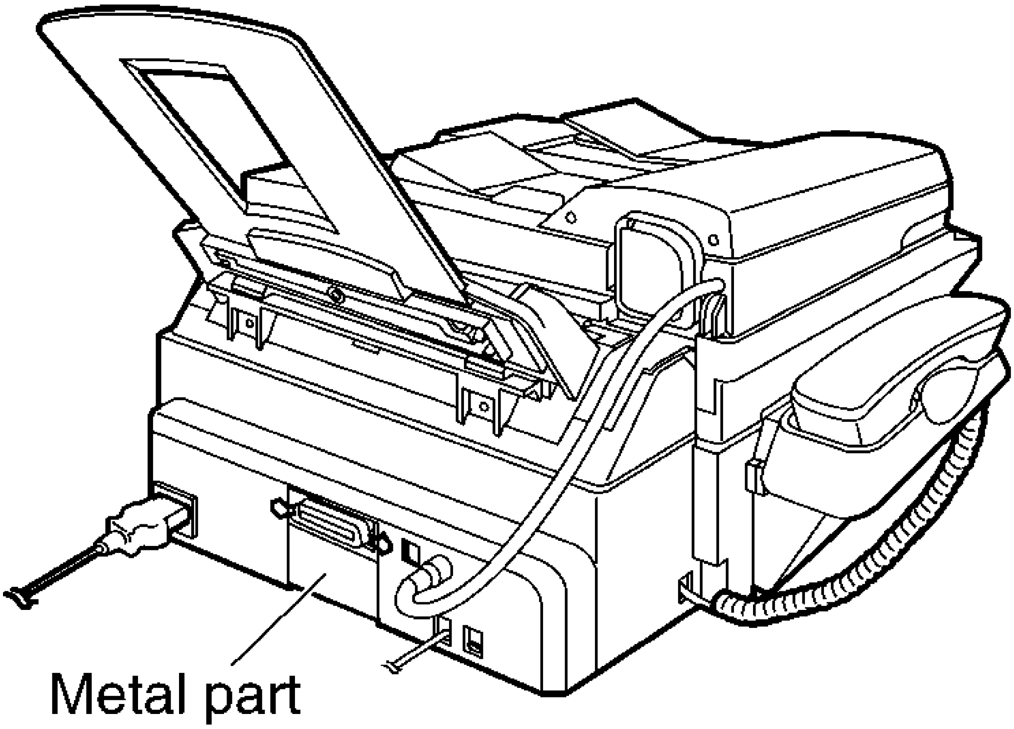
## 1.9. SERVICE PRECAUTIONS

### 1.9.1. PRECAUTIONS TO PREVENT DAMAGE FROM STATIC ELECTRICITY

**Electrical charges accumulate on a person. For instance, clothes rubbing together can damage electric elements or change their electrical characteristics. In order to prevent static electricity, touch a metallic part that is grounded to release the static electricity. Never touch the electrical sections such as the power supply unit, etc.**



**To prevent static electricity damage to the interface connectors (parallel and USB) or other electrical components inside the unit,**
**touch a grounded metal surface, such as the metal part under the parallel interface connector before touching the components.**



# 2. FEATURES AND SPECIFICATIONS

## 2.1. FEATURES

**General**

- **Help function**
  **Display:**
  1. **QUICK SET UP**
  2. **FEATURE LIST**
  3. **DIRECTORY**
  4. **FAX RECEIVING**
  5. **COPIER**
  6. **REPORTS**
  7. **CALLER ID**
- **LCD (Liquid Crystal Display) readout**
- **TAM (Telephone answering machine) interface**

**Plain Paper Facsimile Machine**

- **Letter/A4/Legal, G3 compatible**
- **Automatic document feeder (15 sheets)**
- **Quick scan**
- **Resolution: Standard/Fine/Super fine/Photo (64 level)**
- **STANDARD: For printed or typewritten originals with normal-sized**

characters.
- FINE: For originals with small printing.
- SUPER FINE: For originals with minute printing.
- PHOTO: For originals containing photograph.
- Broad cast
- 150-sheet paper capacity (60 g/m2~ 75 g/m2[16 lb~20 lb.])

Large Memory... Performed by DRAM
Approx. 150 pages of memory reception
Approx. 150 pages of memory transmission

Integrated Telephone System
- On-hook dialing
- Monitor speaker
- Voice muting
- Redialing function
- 112-Station telephone directory

Enhanced Copier Function
- Multi-copy function (up to 99 copies)
- Enlargement and reduction
- Collate
- 64-Level halftone

## 2.2. SPECIFICATIONS

**Applicable Lines:**
Public Switched Telephone Network

**Document Size:**
Max. 216 mm (8 1/2”) in width
Max. 600 mm (23 5/8”) in length

**Effective Scanning Width:**
208 mm (8 3/16”)

**Effective Printing Width:**
A4 : 202mm
Letter/Legal : 208mm

**Transmission Time*:**
Approx. 4 s/page (ECM-MMR Memory transmission)**

**Scanning Density:**

Horizontal:
11.8 pels/mm (300 pels/mm)
Vertical:
3.9 lines/mm (100 lines/mm)-STANDARD
11.8 lines/mm (300 lines/mm)-FINE/SUPER FINE/PHOTO

**Halftone Level:**
64-level

**Scanner Type:**
Contact Image Sensor (CIS)

**Printer Type:**
Laser printer

**Data Compression System:**
Modified Huffman (MH), Modified READ (MR), Modified, Modified READ (MMR)

**Modem Speed:**
33,600/31,200/28,800/26,400/24,000/21,600/19,200/16,800/14,400/
12,000/9,600/7,200/
4,800/2,400 bps; Automatic Fallback

**Operating Environment:**
10°C—32.5°C (50°F—90.5°F), 20—80% RH (Relative Humidity)

**Dimensions (H×W×D):**
217 mm × 443 mm × 461 mm (8 17/32”×17 7/16”×18 5/32”)

**Mass (Weight):**
Approx. 9.2 kg (20.3 lb.)

**Power Consumption:**
Standby: Approx. 7 W
Transmission: Approx. 17 W
Reception: Approx. 250 W
Copy: Approx. 250 W
Maximum: Approx. 900 W (When the fuser unit turns on)

**Power Supply:**
220-240 V AC, 50/60 Hz

**Memory Capacity:**
Approx. 150 pages of memory transmission/reception.

**(Based on ITU-T No. 1 Test Chart in standard resolution.)**

**Laser diode properties:**

**Laser output: Max. 5 mW**
**Wave length: 760 nm—800 nm**
**Emission duration: Continuous**

**Print Speed:**

**10 ppm (page per minute)**

**Printing Resolution:**

**600 × 600 dpi**

**OS:**

**Works with Windows 95/98/Me/2000/NT4.0/XP**

**Interface:**

**USB/Parallel (IEEE 1284)**

*** Transmission speed depends upon the contents of the pages, resolution, telephone line conditions and capability of the other party's machine.**

**** Transmission speed is based upon the ITU-T No. 1 Test Chart and original mode. (Refer to ITU-T No.1 TEST CHART().) If the capability of the other party's machine is inferior to your unit, the transmission time may be longer.**

**Note:**

- **Any details given in these instructions are subject to change without notice.**
- **The pictures and illustrations in these instructions may vary slightly from the actual product.**

**Design and specifications are subject to change without notice.**

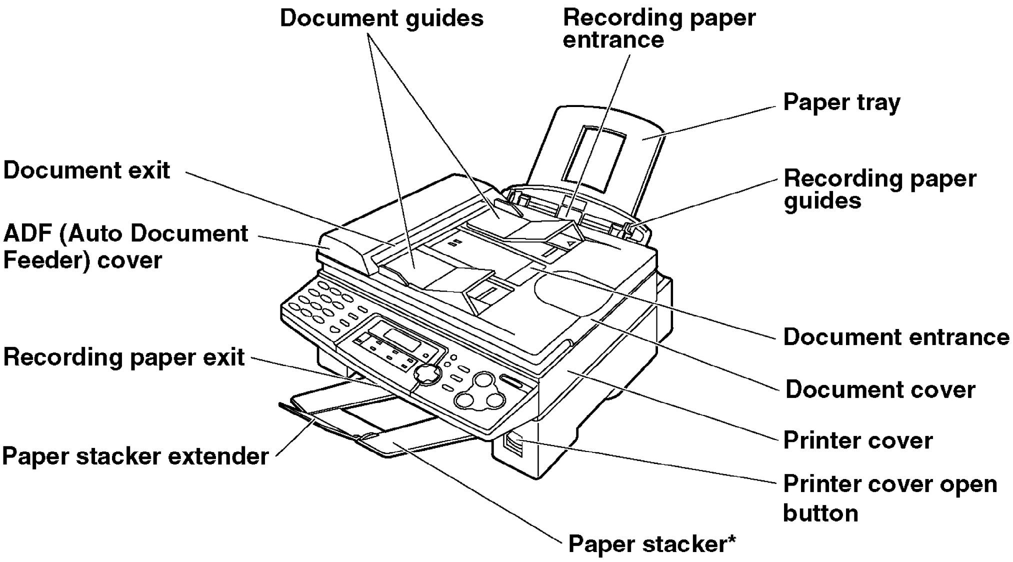
## 2.3. OPTIONAL ACCESSORIES

| Model No. | Description | Specifications |
|---|---|---|
| KX-FA76A | Toner cartridge | 1 toner cartridge |
| KX-FA78A | Drum unit | 1 drum unit |

# 3. INSTALLATION

## 3.1. LOCATION OF CONTROLS

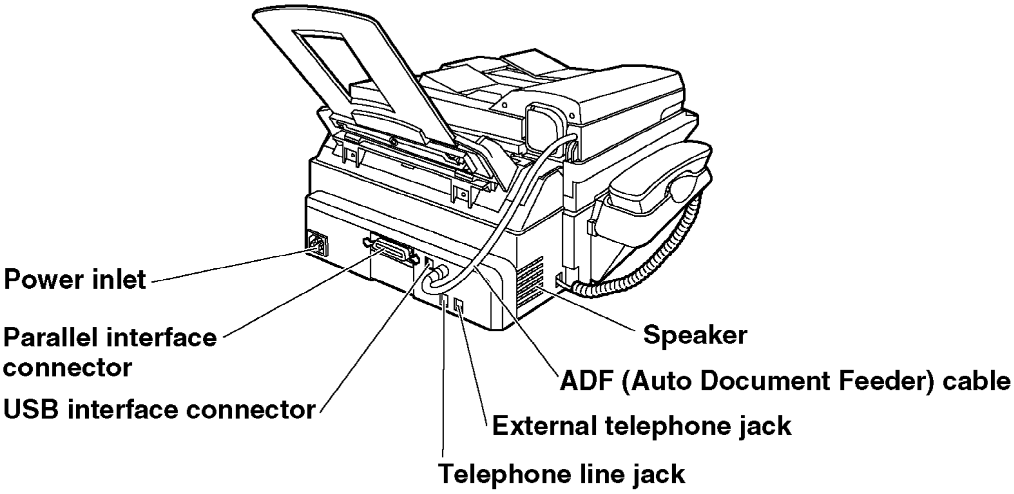
### 3.1.1. OVERVIEW


Document guides
Recording paper entrance
Paper tray
Document exit
Recording paper guides
ADF (Auto Document Feeder) cover
Document entrance
Recording paper exit
Document cover
Printer cover
Paper stacker extender
Printer cover open button
Paper stacker*

Note:

*The paper stacker may not be shown in all illustrations.

### 3.1.2. REAR VIEW


Power inlet
Parallel interface connector
USB interface connector
Speaker
ADF (Auto Document Feeder) cable
External telephone jack
Telephone line jack

### 3.1.3. CONTROL PANEL

•To redial the last number dialled.
•To insert a pause during dialling.

•To turn on/off the auto answer setting.

•To initiate or exit programming.

•To mute your voice to the other party during a conversation. Press this button again to resume the conversation.

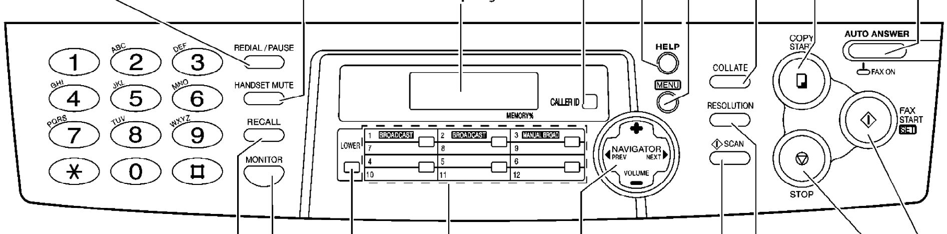
•To print a quick reference.

•To use caller ID service.

•To make a collated copy.

•To initiate copying.

Display



1
ABC 2
DEF 3
GHI 4
JKL 5
MNO 6
PQRS 7
TUV 8
WXYZ 9
0
REDIAL / PAUSE
HANDSET MUTE
RECALL
MONITOR
LOWER
1 BROADCAST
2 BROADCAST
3 MANUAL BROAD
4
5
6
7
8
9
10
11
12
MEMORY
CALLER ID
HELP
MENU
NAVIGATOR
PREV
NEXT
VOLUME
COLLATE
RESOLUTION
SCAN
COPY START
AUTO ANSWER
FAX ON
FAX START
SET
STOP

•To access special telephone services such as call waiting or for transferring extension calls.

•To initiate dialling.

•To select stations 7–12 for one-touch dial.

•To adjust volume.
•To search for a stored name.
•To select the features or feature settings during programming.
•To navigate to the next operation.

•To select a resolution.

•To scan the document into memory.
•To use the fax machine as a scanner when connecting to a computer.

• To use one-touch dial.
• To transmit to multiple entries.

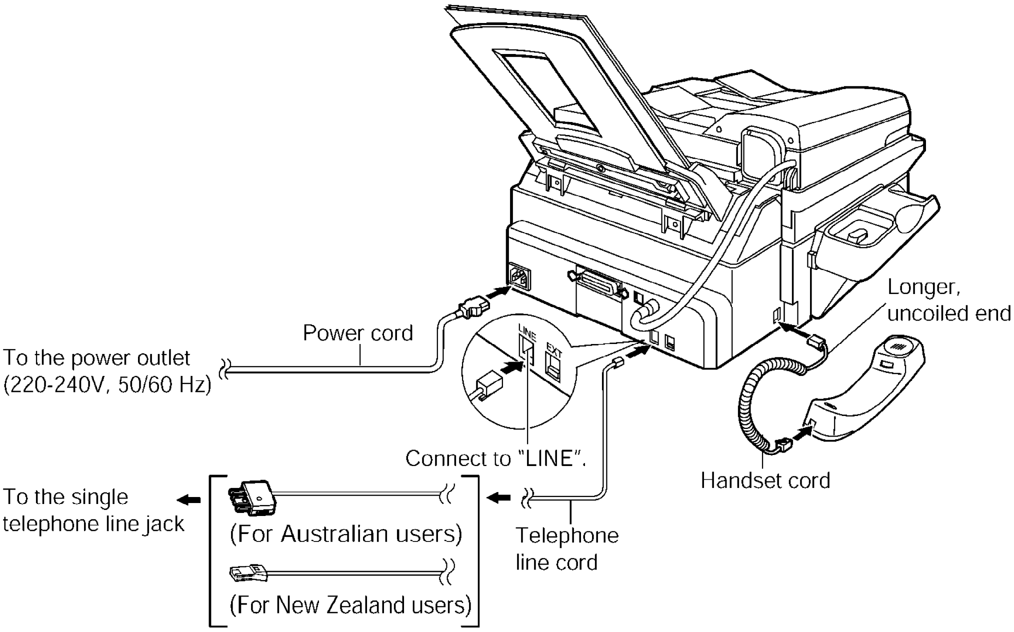
•To stop an operation or cancel programming.

• To initiate fax transmission or reception.
• To store a setting during programming.

## 3.2. CONNECTIONS

**(1) Connect the handset cord.**
**The jack on the longer, uncoiled end of the handset cord should be connected to the unit.**
**(2) Connect the telephone line cord.**
**(3) Connect the power cord.**

**- When the power is turned on for the first time, the unit will print some basic information.**


Longer, uncoiled end
Power cord
To the power outlet (220-240V, 50/60 Hz)
LINE
EXT
Connect to "LINE".
Handset cord
To the single telephone line jack
(For Australian users)
(For New Zealand users)
Telephone line cord

**Caution:**

- **When you operate this produce, the power outlet should be near the product and easily accessible.**
- **Be sure to use the telephone line cord included in this unit.**
- **Do not extend the telephone line cord.**

**Note:**

- **You can connect an answering machine or extension telephone to the external telephone jack ("EXT") on this unit.**
- **When the power is turned on and the display shows the following, unlock the shipping lock.**

Display : CARRIAGE ERROR

↕

RELEASE
SHIPPING LOCK

- **Telephone line connection is TNV (Telecommunication Network Voltage).**

## 3.3. CONNECTING TO A COMPUTER

**Panasonic Multi-Function Station enables your fax machine to carry out the following functions:**

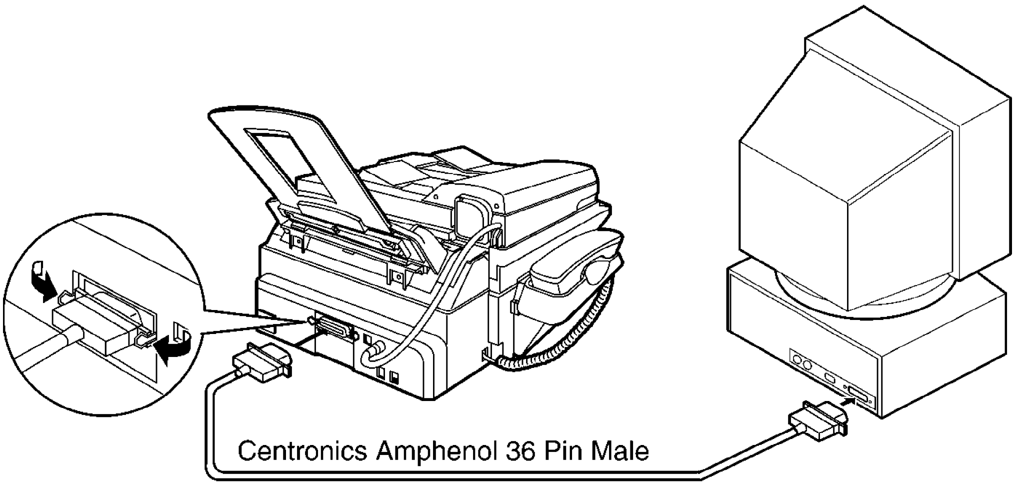
**— Printing on plain paper, transparencies, labels and envelopes**
**— Scanning documents and converting an image into text with Readiris OCR software**
**— Scanning from other Microsoft® Windows® applications that support TWAIN scanning**
**— Storing, editing or erasing entries in directories from your PC**
**— Programming the basic and advanced features from your PC**

**— Sending, receiving fax documents using your PC**
**To run Multi-Function Station software, you need the following:**

| | |
|---|---|
| OS: | Works with Windows 95/98/Me/2000/XP and Windows NT®4.0 |
| CPU: | Windows 95/98: Pentium® 90 MHz or higher processor |
| | Windows Me: Pentium 150 MHz or higher processor |
| | Windows NT4.0: Pentium 133 MHz or higher processor |
| | Windows 2000: Pentium 166 MHz or higher processor |
| | Windows XP: Pentium 300 MHz or higher processor |
| Memory minimum: | Windows 95/98/NT4.0: 24 MB (32 MB or more is recommended.) |
| | Windows Me: 32 MB (64 MB or more is recommended.) |
| | Windows 2000: 64 MB |
| | Windows XP: 128 MB |
| Hard disk: | More than 50 MB available space |
| Other: | Parallel (IEEE1284) port or USB port, and CD-ROM drive |

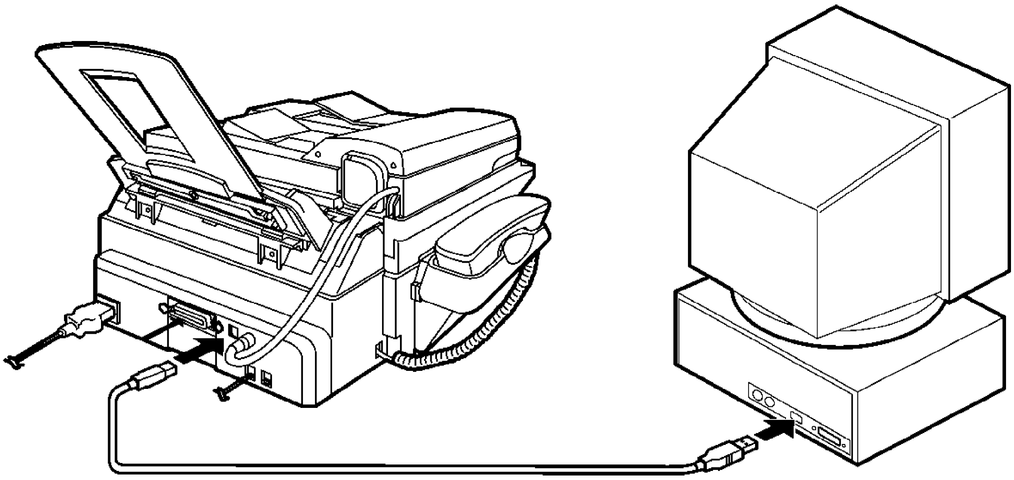
## 3.3.1. Using an IEEE1284 compliant parallel cable:

**Parallel cable (amphenol 36pin, less than 3 metres long) must be purchased separately.**



## 3.3.2. Using a USB cable: (Windows 95/NT4.0 does not apply for USB port)

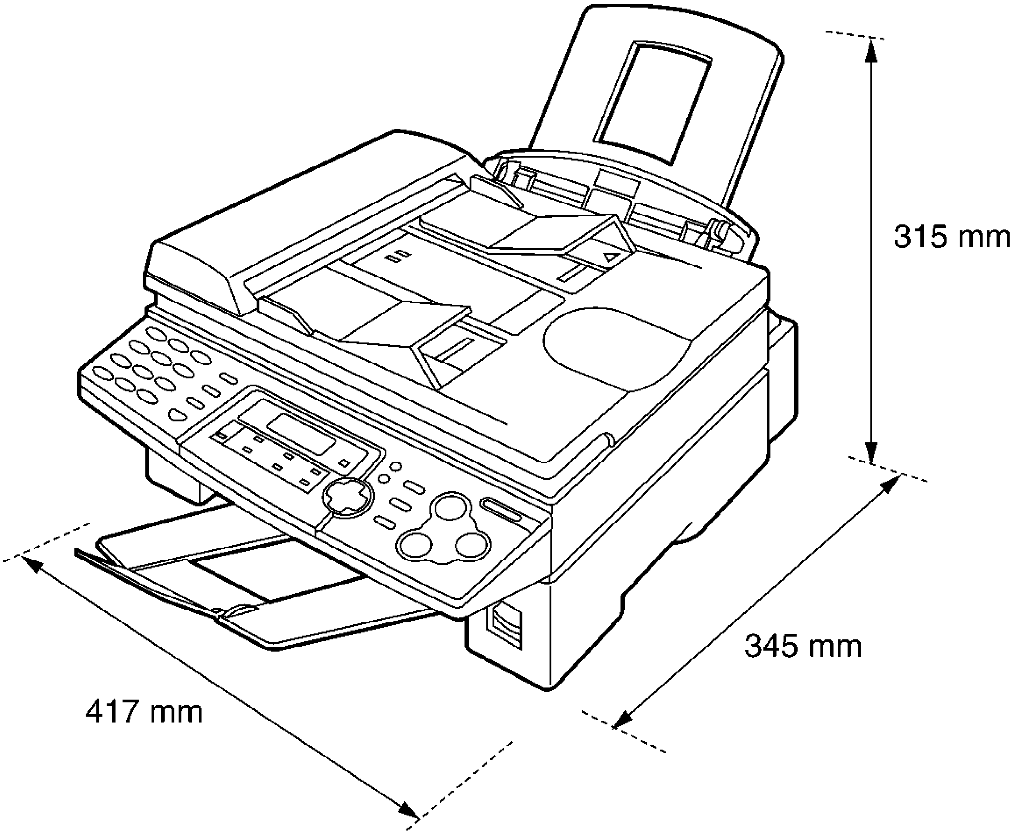
**USB cable (less than 3 metres long) must be purchase separately.**
**After connecting the USB cable, you must set the cable type to “USB” (feature #15)**



# 3.4. INSTALLATION

## 3.4.1. INSTALLATION SPACE

**The space required to install the unit is shown below.**
**The dimensions given are necessary for the unit to operate efficiently.**



**Note:**

- **Avoid excessive heat or humidity.**
- **Use the unit within the following ranges of temperature and humidity.**
- **Ambient temperature: 5°C to 35°C**

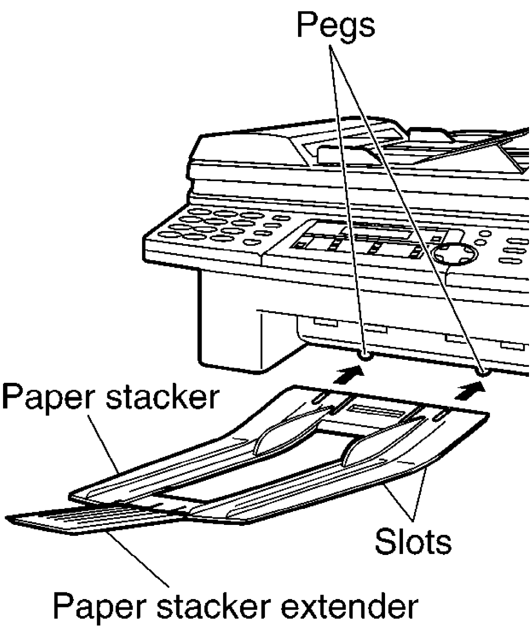
- Relative humidity: 20% to 80% (without condensation)
- Power cord length should be less than 5 meters (16.4 feet). Using a longer cord may reduce the voltage or cause malfunctions.
- Avoid direct sunlight.
- Do not install near devices which contain magnets or generate magnetic fields.
- Do not subject the unit to strong physical shock or vibration.
- Keep the unit clean. Dust accumulation can prevent the unit from functioning properly.
- To protect the unit from damage, hold both sides when you move it.

### 3.4.2. PAPER STACKER

Line up the slots in the paper stacker with the pegs on the bottom of the unit, then slide until locked.

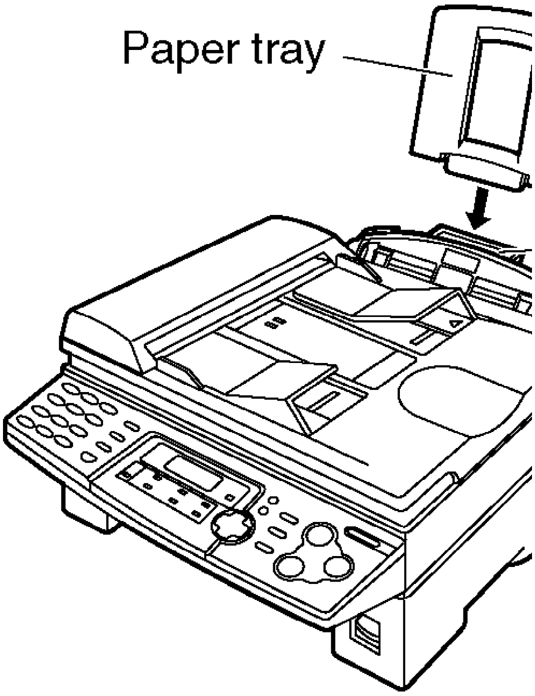
Open the paper stacker extender when using legal size paper.

-The paper stacker can hold up to approx. 100 sheets of printed paper. Remove the printed paper before the paper stacker becomes full.



### 3.4.3. PAPER TRAY

Insert the paper tray into the slot on the back of the unit.



Note for installation:

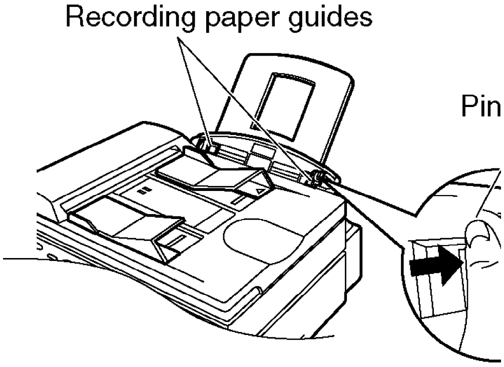
- Do not place the unit in an area where the paper tray may be obstructed (i.e. by a wall etc.).
- Recording paper will be ejected from the front of the unit. Do not place anything in front of the unit.

### 3.4.4. INSTALLING THE RECORDING PAPER

Letter, legal or A4 size recording paper can be used for fax messages. The unit can hold up to 150 sheets of 60 g/m2 to 75 g/m2 (16 lb. to 20 lb.) paper or 120 sheets of 90 g/m2 (24 lb.) paper.See the note for paper specifications.

- **The unit is set for letter size paper by default. If you want to use legal or A4 size paper, change the setting (feature #16).**

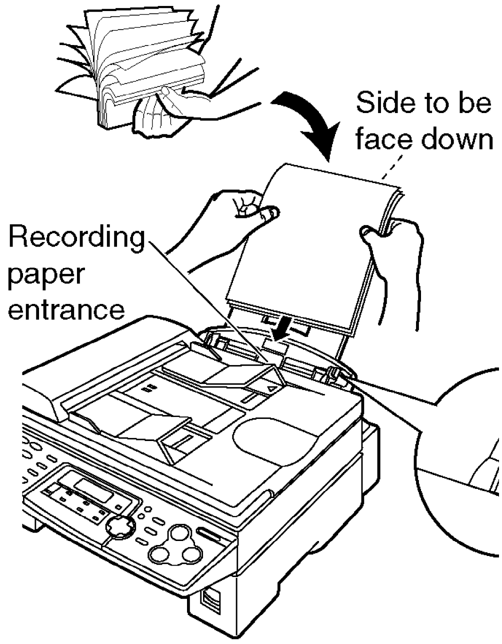
1. **Pinch the right side of the recording paper guide, then slide it open to its full width.**

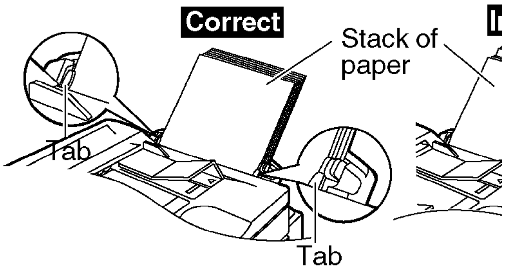

Recording paper guides
Pin

2. **Fan the stack of paper to prevent a paper jam.**

3. **Insert the paper into the recording paper entrance.**

   **- The paper should not be over the tab.**
   **- If the paper is not inserted correctly, readjust the paper, or the paper may jam.**


Side to be face down
Recording paper entrance

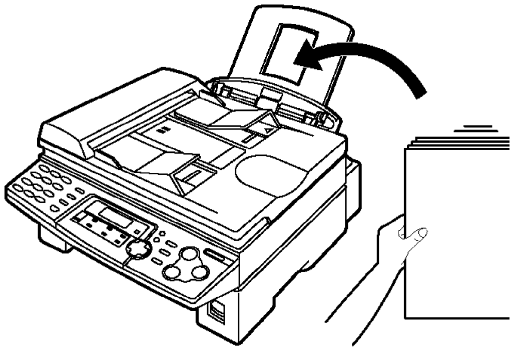

Correct
Stack of paper
Tab
Tab

4. **Adjust the width of the guides to the size of the recording paper by sliding the right recording paper guide.**

#### 3.4.4.1. Adding Paper

1. **Remove all of the installed paper.**
2. **Add paper to the stack of paper you removed and**
3. **straighten.**

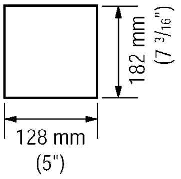
**Follow steps 1 to 4 above.**



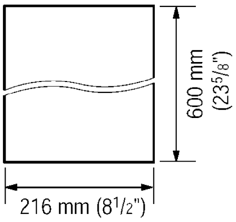
## 3.4.5. DOCUMENTS THE UNIT CAN FEED

### 3.4.5.1. USING THE ADF (AUTO DOCUMENT FEEDER)

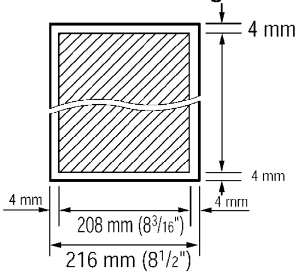
**Minimum size**


182 mm
(7 3/16")
128 mm
(5")

**Maximum size**


600 mm
(23 5/8")
216 mm (8 1/2")

**Effective scanning area**


4 mm
4 mm
4 mm
4 mm
208 mm (8 3/16")
216 mm (8 1/2")

**Document weight**

Single sheet:
45 g/m² to 90 g/m²

Multiple sheets:
60 g/m² to 80 g/m²

**Note:**

**- Remove chips, staples or other similar fasteners.**

**- Do not send the following types of documents. (Use the scanner glass for fax transmission.)**

**— Chemically treated paper such as carbon or carbonless duplicating paper**

**— Electrostatically charged paper**

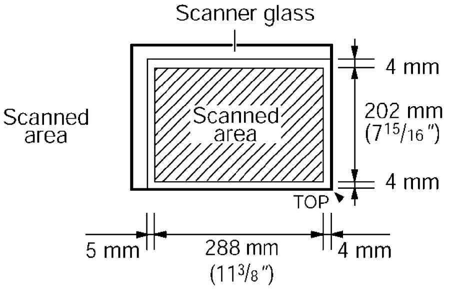
**— Badly curled, creased or torn paper**

**— Paper with a coated surface**

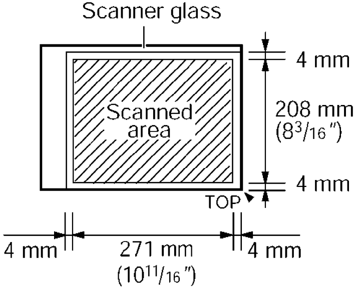
### 3.4.5.2. USING SCANNER GLASS

**Effective scanning area is changed depending on the setting of the paper size. (# 16 PROGRAM MODE TABLE )**

**When the paper size is set to "A4":**


Scanner glass
Scanned
area
Scanned
area
4 mm
202 mm
(7 15/16")
4 mm
TOP
5 mm
288 mm
(11 3/8")
4 mm

**When the paper size is set to "LETTER":**


Scanner glass
Scanned
area
4 mm
208 mm
(8 3/16")
4 mm
TOP
4 mm
271 mm
(10 11/16")
4 mm

**Note for the auto document feeder and the scanner glass**

- **Check that ink, paste or correction fluid has dried completely.**
- **Do not send the following types of documents: (Use copies for fax transmission.)**
- **Paper with a faint image**
- **Paper with printing on the opposite side that can be seen through the other side (i.e. newspaper)**
- **To transmit the document with a width of less than A4 size (210 mm), we recommend transmitting the document using the scanner glass.**

### 3.4.6. TO SELECT CHARACTERS WITH THE DIAL KEYPAD

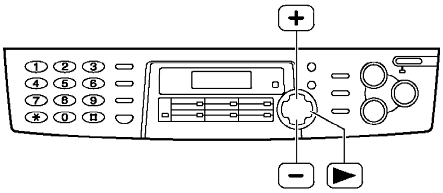
**Pressing the dial keys will select a character as shown below.**

| Keys | Characters |
|---|---|
| 1 | 1 [ ] { } + - / = , . _ ` : ; ? \| |
| 2 | A B C a b c 2 |
| 3 | D E F d e f 3 |
| 4 | G H I g h i 4 |
| 5 | J K L j k l 5 |
| 6 | M N O m n o 6 |
| 7 | P Q R S p q r s 7 |
| 8 | T U V t u v 8 |
| 9 | W X Y Z w x y z 9 |
| 0 | 0 ( ) 〈 〉 ! " # $ % & ¥ ∗ @ ^ ' → |
| # | To change capital or lower case letter. |
| RECALL | **Hyphen** button (To insert a hyphen.) |
| HANDSET MUTE | **Insert** button (To insert one character or one space.) |
| STOP | **Delete** button (To delete a character.) |
| ► | ► key (To move the cursor to the right.)<br>To enter another character using the same number key, move the cursor to the next space. |
| ◄ | ◄ key (To move the cursor to the left.) |

### 3.4.7. TO SELECT CHARACTERS USING THE (+) OR (-) KEY

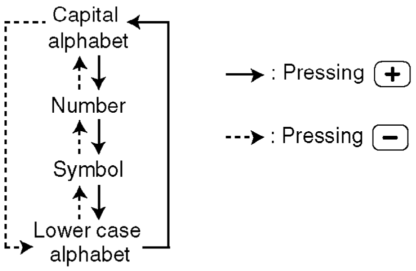
### To select characters using + or −

Instead of pressing the dial keys, you can select characters using + or −.



1. Press + or − until the desired character is displayed.
2. Press ▶ to move the cursor to the next space.
   - The character displayed in step 1 is inserted.
3. Return to step 1 to enter the next character.

### Display order of characters


Capital alphabet
Number
Symbol
Lower case alphabet
→ : Pressing +
⇢ : Pressing −

## 3.4.8. SETTING YOUR LOGO

**The logo can be your company, division or name.**

**1** Press MENU.

Display:

```
SYSTEM SET UP
PRESS NAVI.[◄ ►]
```

**2** Press ◄ or ► until the following is displayed.

```
YOUR LOGO
      PRESS SET
```

**3** Press SET.

```
LOGO=
```

**4** Enter your logo, up to 30 characters, using the dial keypad. See the next page for details.

**Example:** "Bill"

1. Press 2 2 times.

Cursor

```
LOGO=B
```

2. Press 4 6 times.

```
LOGO=Bi
```

3. Press 5 6 times.

```
LOGO=Bil
```

4. Press ► to move the cursor to the next space and press 5 6 times.

```
LOGO=Bill
```

**5** Press SET.

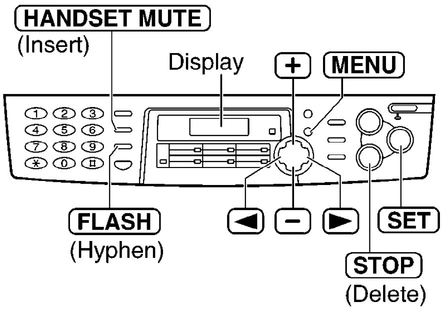
- The next feature will be displayed.

```
YOUR FAX NO.
      PRESS SET
```

**6** Press MENU.

**Note:**

- You can enter your logo by pressing + or − (see the next page) in step 4. In this case, press ► to move the cursor.



**To change capital or lower case letters**

Pressing the # key will change to capital or lower case alternatively.

1. Press 2 2 times.

Display:

```
LOGO=B
```

2. Press 4 3 times.

```
LOGO=BI
```

3. Press #.

```
LOGO=Bi
```

4. Press 5 3 times.

```
LOGO=Bil
```

**To correct a mistake**

- Press ◄ or ► to move the cursor to the incorrect character, and make the correction.

**To delete a character**

- Move the cursor to the character you want to delete and press STOP (Delete).

**To insert a character**

1. Press ◄ or ► to move the cursor to the position to the right of where you want to insert the character.
2. Press HANDSET MUTE (Insert) to insert a space and enter the character.

## 3.4.9. REPLACING THE TONER CARTRIGE AND THE DRUM UNIT

**When the display shows the following, replace the toner cartridge.**

Display: `TONER LOW` or `TONER EMPTY`

**We recommend you replace the drum unit every third time you replace the toner cartridge.To check the drum life and quality, please print the printer test list.**

**To ensure that the unit operates properly, we recommend the use of Panasonic toner cartridge (Model No. KX-FA76A) and drum unit (Model No. KX-FA78A).**

**Caution:**

**- The drum unit contains a photosensitive drum. Exposing it to light**

**may damage the drum. Once you have opened the protection bag:**

**—Do not expose the drum unit to light for more than 5 minutes.**

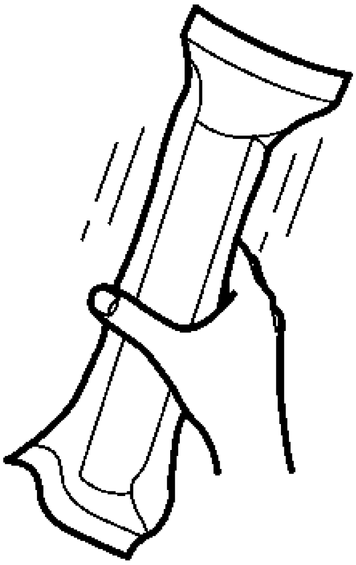
**—Do not touch or scratch the green drum surface.**

**—Do not place the drum unit near dust or dirt, or in a high humidity area.**

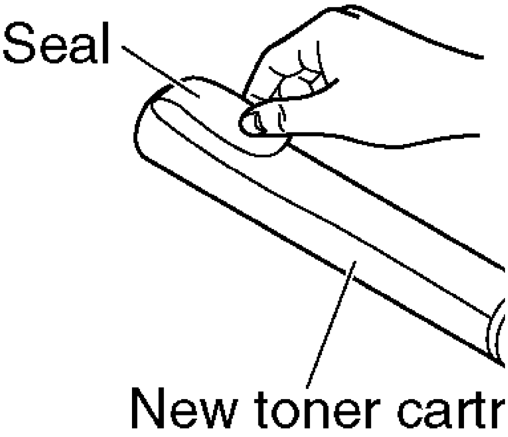
**—Do not expose the drum unit to direct sunlight.**

- **Do not unplug the fax machine to prevent loss of fax documents in memory.**
- **We cannot be responsible for any damage to the unit or degradation of print quality which may occur from the use of non-Panasonic toner cartridge and drum unit.**
- **Do not leave the toner cartridge out of the protection bag for a long time. It will decrease the toner life.**
- **Do not pour any toner into the toner cartridge.**

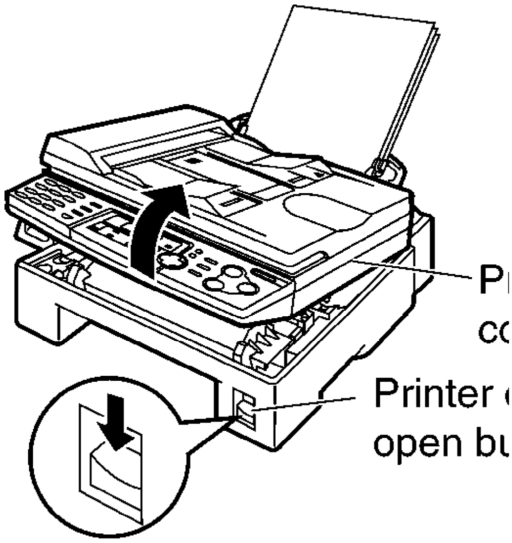
1. **Before opening the protection bag of the new toner cartridge, shake it vertically more than 5 times.**



2. **Remove the new toner cartridge from the protection bag. Peel off the seal from the toner cartridge.**

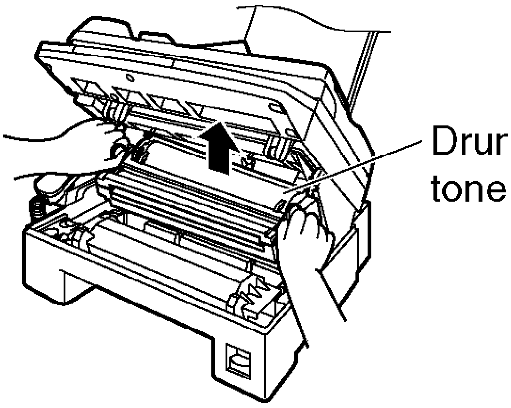

Seal
New toner cartr

3. **Press down the printer cover open button then open the printer cover.**

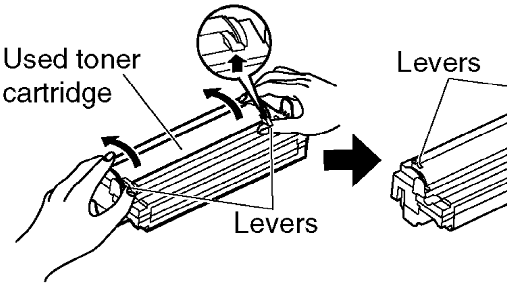

Pr
co
Printer
open bu

4. **Tap on the used toner cartridge several times to allow the remaining toner to fall into the drum unit. Remove the drum and toner unit by holding the two tabs.**

**-l If you replace the toner cartridge and the drum unit at the sam time, skip to step 7.**



5. **Turn the two levers on the used toner cartridge firmly.**


Used toner cartridge
Levers
Levers

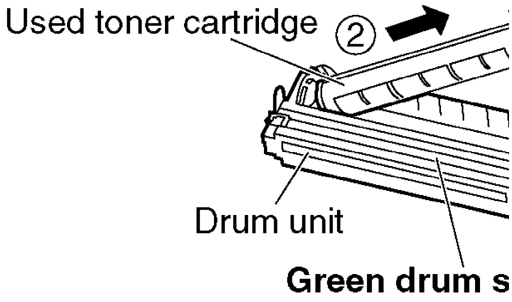
6. **Pull up the right edge of the used toner cartridge (①).**

   **Remove the cartridge from the drum unit (②).**

   **-The toner may stick to the cartridge and the drum unit. Be careful handling.**

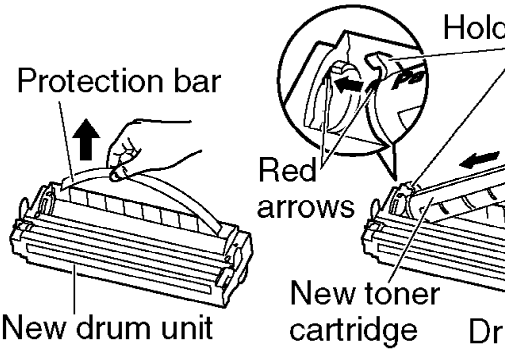
   **-Do not drop the toner on the green drum surface.**

   **-Put the used toner cartridge into the protection bag.**

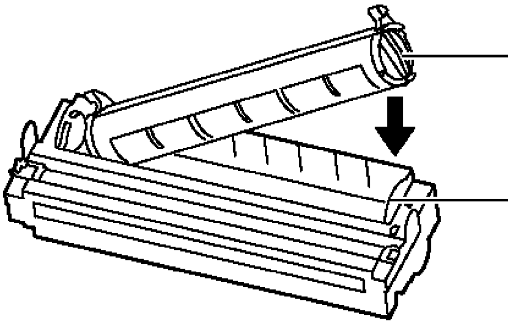

Used toner cartridge
②
Drum unit
Green drum s

7. **If you replace the drum unit at the same time, remove the new drum unit from the protection bag. Remove the protection bar from the drum unit.**

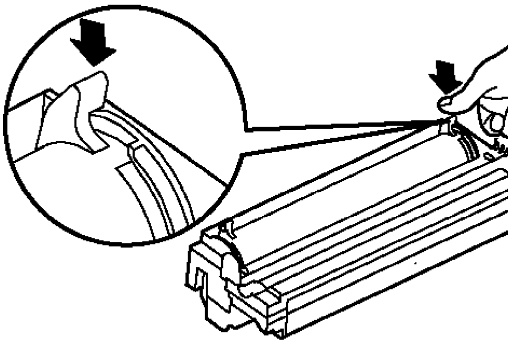
   **With "Panasonic" face up on the toner cartridge, match the red arrows on the cartridge and the drum unit.**


Protection bar
New drum unit
Holc
Red arrows
New toner cartridge
Dr

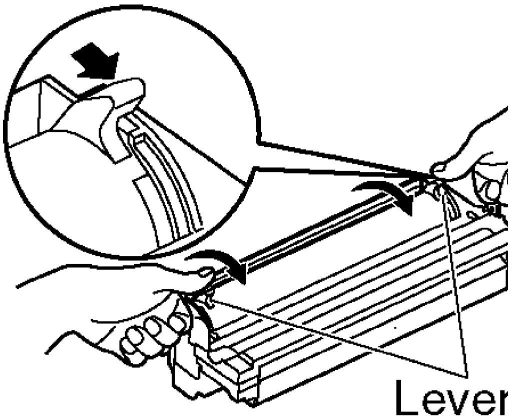
8. **Slide the tab on the toner cartridge into the slot of the drum unit.**



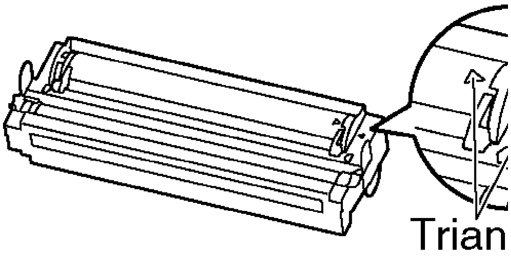
9. **Firmly press down on the right side of the toner cartridge to snap into position.**



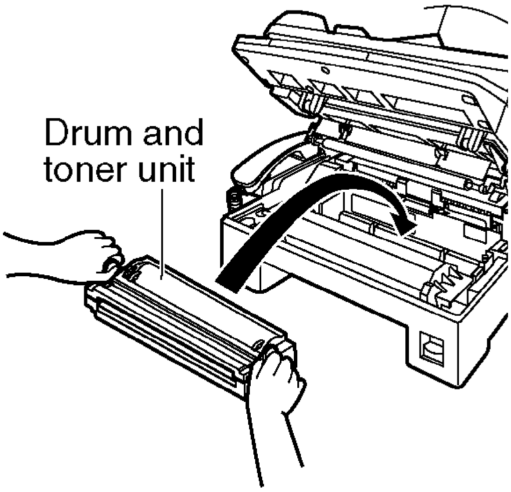
10. **Turn the two levers on the toner cartridge with film pressure.**



11. **The toner cartridge is installed when the triangles match.**

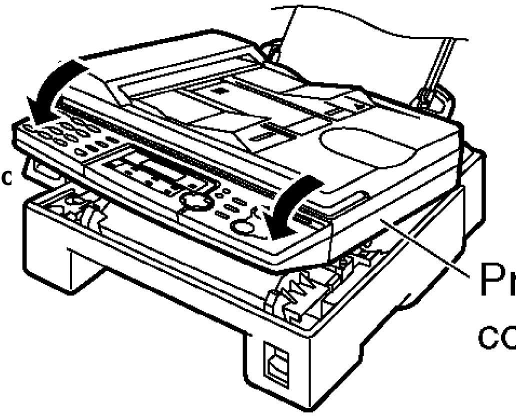


12. **Install the drum and toner unit by holding the tabs.**
    **-If the lower glass is dirty, clean it with a soft and dry cloth.**



13. **Close the printer cover by pushing down on both sides until locked.**

**Waste disposal method**
**- Waste material may be dumped or incinerated under conditions which meet all country and loc environmental regulations.**



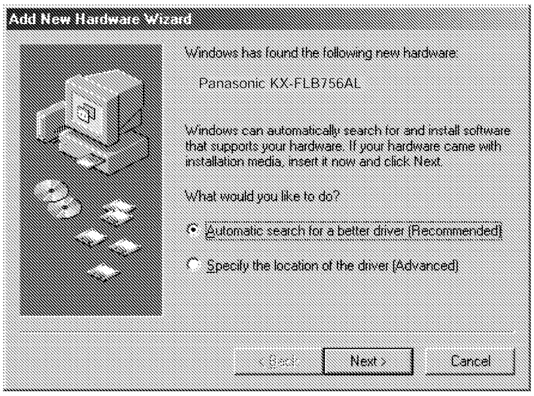
## 3.5. INSTALLING MULTI-FUNCTION STATION SOFTWARE

**1 Connect the fax machine to the PC.**

- To use via USB connection, you must set the cable type to "USB"(feature #15) The default setting is "PARALLEL".

**2 Start Windows 95/98/Me/NT4.0/2000/XP and close all applications.**

- The following dialog box may appear. Click [Cancel] to close it.



Windows has found the following new hardware:

Panasonic KX-FLB756AL

Windows can automatically search for and install software that supports your hardware. If your hardware came with installation media, insert it now and click Next.

What would you like to do?

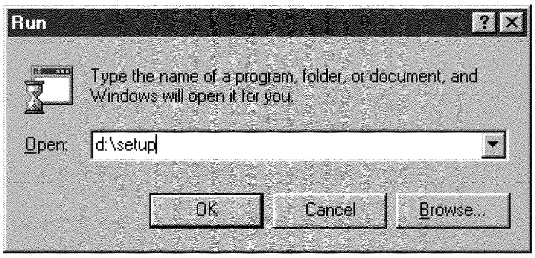
● Automatic search for a better driver (Recommended)

○ Specify the location of the driver (Advanced)

- You must be logged in as an administrator in Windows NT4.0/2000/XP.

**3 Insert the included CD-ROM into your CD-ROM drive.**

- The [Choose Setup Language] dialog box will appear. Select the desired language that you want to use with this software from the drop-down list. Click [OK].
  The installation will automatically start.
- If the [Choose Setup Language] dialog box does not appear:
  The installation will automatically start.
- If the installation does not start automatically:
  Click [Start], choose [Run...]. Type "d:\setup" (where "d:" is the drive letter of your CD-ROM drive). Click [OK].
  (If you are not sure what the drive letter is for your CD-ROM drive, use Windows Explorer and look for the CD-ROM drive.)



Type the name of a program, folder, or document, and Windows will open it for you.

Open: d:\setup

**- The installation will start.**

**4 Follow the instructions on the screen until all files have been installed.**

**- Readiris OCR software can also be installed. For details about OCR software.**

**- If the fax machine is not connected to your computer, the [Port Selection] dialog box will appear.**
**Select the port number which you want to use.If the fax machine is connected to your computer, the port number will be automatically detected.**

**To uninstall the software**

1. **Click [Start].**
2. **Point to [Settings], then click [Control Panel].**
3. **Double-click [Add/Remove Programs].**
4. **Select [Panasonic Multi-Function Station] from the list.**
5. **Click [Add/Remove...] (Windows 95/98/Me/NT4.0)/ [Change/ Remove...] (Windows 2000/XP), then follow the instructions on the screen.**

**Important notice for USB cable users.**
· If you use a USB cable with Windows XP, the following message may appear:
"The software you are installing for this hardware has not passed Windows Logo testing to verify its compatibittiy with Windows XP"
You can continue the installation with no problem.

- **The screens shown in these instructions are from Windows Me.**
- **The screens may differ slightly from those of the actual product.**
- **The screens are subject to change for improvement without notice.**

# 4. MAINTENANCE

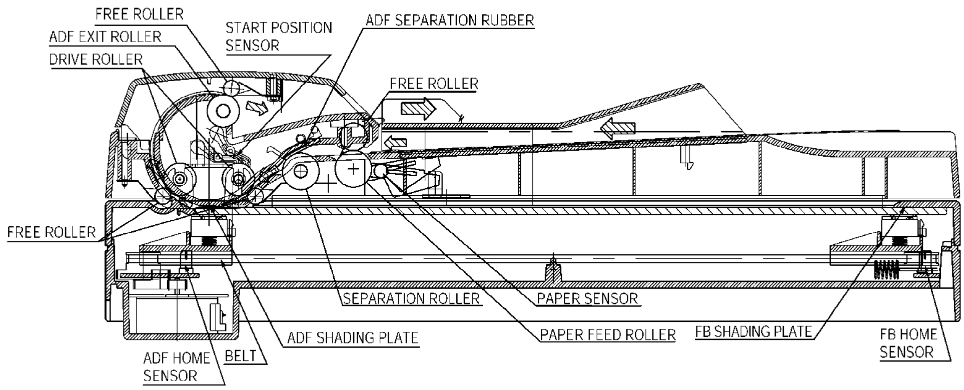
## 4.1. MAINTENANCE ITEMS AND COMPONENT LOCATIONS

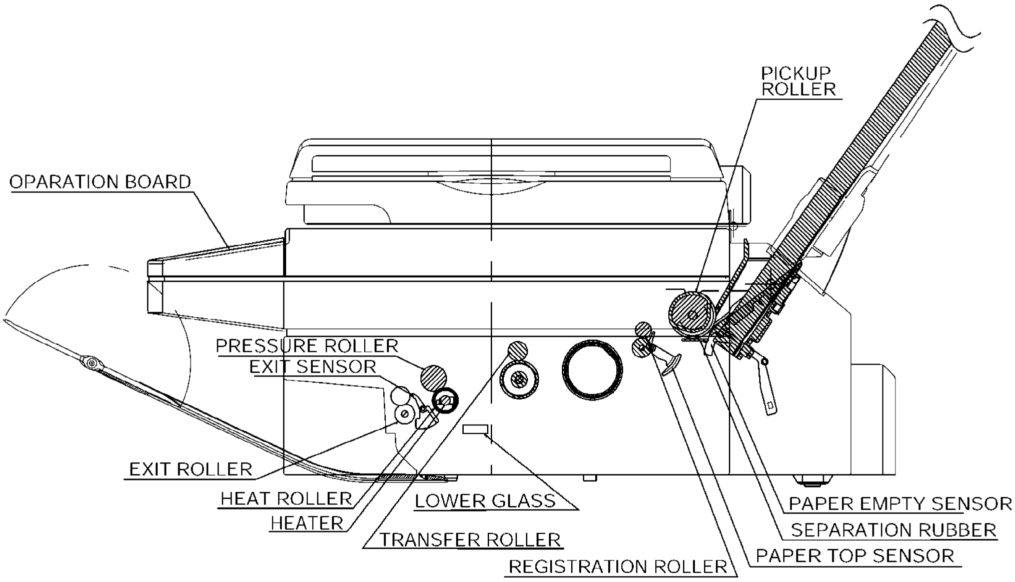
### 4.1.1. OUTLINE

MAINTENANCE AND REPAIRS ARE PERFORMED USING THE FOLLOWING STEPS.

1. **Periodic maintenance**
   **Inspect the equipment periodically and if necessary, clean any contaminated parts.**
2. **Check for breakdowns**
   **Look for problems and consider how they arose.**
   **If the equipment can be still used, perform copying, self testing or communication testing.**
3. **Check equipment**
   **Perform copying, self testing and communication testing to determine if the problem originates from the transmitter, receiver or the telephone line.**
4. **Determine causes**
   **Determine the causes of the equipment problem by troubleshooting.**
5. **Equipment repairs**
   **Repair or replace the defective parts and take appropriate measures at this stage to ensure that the problem will not recur.**
6. **Confirm normal operation of the equipment**
   **After completing the repairs, conduct copying, self testing and communication testing to confirm that the equipment operates normally.**
7. **Record keeping**
   **Make a record of the measures taken to rectify the problem for future reference.**

### 4.1.2. MAINTENANCE CHECK ITEMS/COMPONENT LOCATIONS


FREE ROLLER
ADF EXIT ROLLER
DRIVE ROLLER
START POSITION SENSOR
ADF SEPARATION RUBBER
FREE ROLLER
FREE ROLLER
SEPARATION ROLLER
PAPER SENSOR
ADF SHADING PLATE
PAPER FEED ROLLER
FB SHADING PLATE
FB HOME SENSOR
ADF HOME SENSOR
BELT


PICKUP ROLLER
OPARATION BOARD
PRESSURE ROLLER
EXIT SENSOR
EXIT ROLLER
HEAT ROLLER
HEATER
LOWER GLASS
TRANSFER ROLLER
REGISTRATION ROLLER
PAPER EMPTY SENSOR
SEPARATION RUBBER
PAPER TOP SENSOR

### 4.1.2.1. Maintenance List

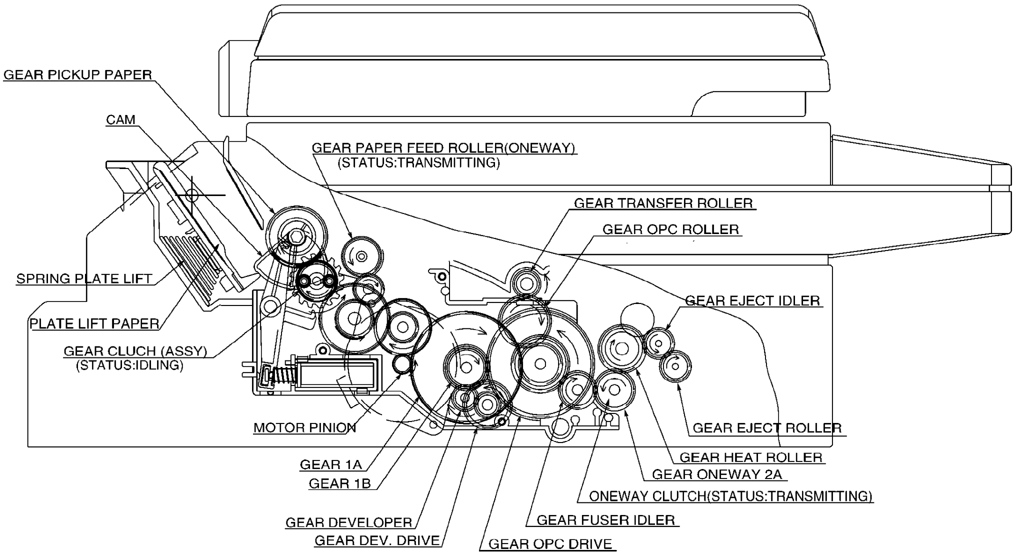
| NO. | OPERATION | CHECK | REMARKS |
|---|---|---|---|
| 1 | Document Path | Remove any foreign matter such as paper. | — |
| 2 | Rollers | If the roller is dirty, clean it with a damp cloth then dry thoroughly. | Refer to MAINTENAN CHECK ITEMS/COMP LOCATIONS().DOCUM FEEDER ROLLERS() |
| 3 | Sensors | Document sensor (PS500), Paper feed sensor (PS501), Printer cover open switch (SW101),ADF cover open sensor (SW501), FB cover open sensor (SW500), ADF CISposition sensor (PS502),FB CIS position sensor (PS503)Resist sensor (PC201) ,Paper exit sensor (PS50). Paper sensor (PS1)Confirm the operation of the sensors. | See MAINTENANCE C ITEMS/COMPONENT LOCATIONS() and SE AND SWITCHES SEC TEST FUNCTIONS() |
| 4 | Glass | If the glass is dirty, clean them with a dry soft cloth. | Refer to MAINTENAN |
| 5 | Abnormal, wear and tear or loose parts | Replace the part. Check if the screws are tight on all parts. | — |

### 4.1.2.2. Maintenance Cycle

| No. | Item | Cleaning Cycle | Replacement | |
|---|---|---|---|---|
| | | | Cycle | Proced |
| 1 | ADF Separation Roller (Ref.No.82) | 3 months | 7 years* (100,000 documents) | Refer to HOW REMOVE THE ROLLER AND SEPARATION (). |
| 2 | Paper Feed Roller (Ref.No.81) | 3 months | 7 years (100,000 documents) | Refer to HOW REMOVE THE ROLLER AND SEPARATION (). |
| 3 | ADF Separation Rubber (Ref. No.43) | 3 months | 7 years (100,000 documents) | Refer to HOW REMOVE THE COVER AND CONVEYOR B |
| 4 | Drive Roller (Ref. No.34) | 3 months | 7 years (100,000 documents) | Refer to HOW REMOVE THE ROLLER AND ROLLER(). |
| 5 | ADF Exit Roller (Ref.No.32) | 3 months | 7 years (100,000 documents) | Refer to HOW REMOVE THE ROLLER AND ROLLER (). |
| 6 | Pick up Roller (Ref No.201) | 3 months | 7 years (100,000 documents) | Refer to HOW REMOVE THE ROLLER ASS’ |
| 7 | Separation Rubber (Ref. No.215) | 3 months | 7 years (100,000 documents) | Refer to HOW REMOVE THE ROLLER ASS’ |
| 8 | Registration Roller (Ref.No.334) | 3 months | 7 years (100,000 documents) | Refer to HOW TO REM REGISTRATIO () |
| 9 | Transfer Roller (Ref.No.161) | 3 months | 7 years (100,000 documents) | Refer to HOW REMOVE THE TRANSFER R |
| 10 | Pressure Roller (Ref.No.292) | 3 months | 7 years (100,000 documents) | Refer to HOW REMOVE THE PRESSURE R |
| 11 | Heat Roller (Ref.No.299) | 3 months | 7 years (100,000 documents) | Refer to HOW REMOVE THE ROLLER AND ROLLER (). |

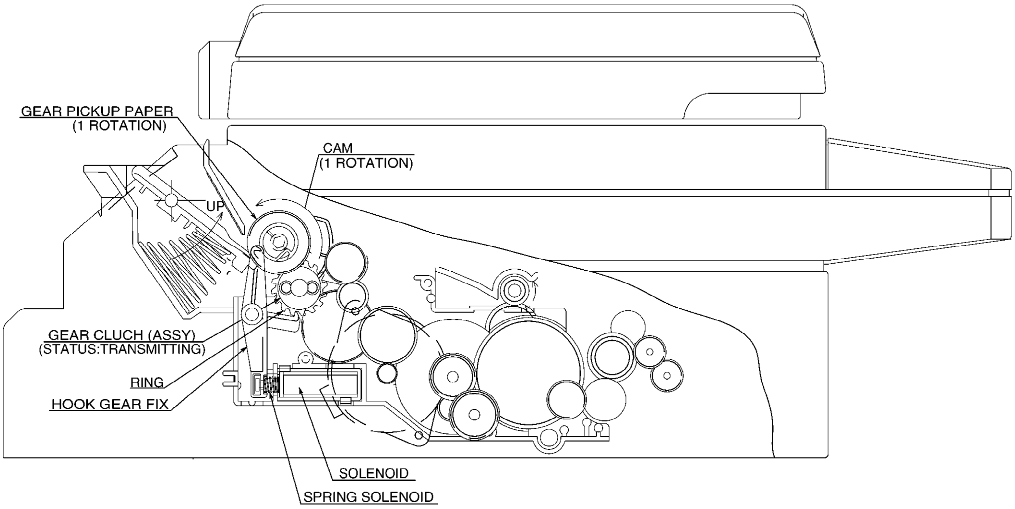
| No. | Item | Cleaning Cycle | Replacement | |
|---|---|---|---|---|
| | | | Cycle | Proced |
| 12 | Exit Roller (Ref.No.307) | 3 months | 7 years (100,000 documents) | Refer to HOW<br>REMOVE THE<br>ROLLER AND<br>ROLLER (). |

## 4.2. PRINTING


GEAR PICKUP PAPER
CAM
GEAR PAPER FEED ROLLER(ONEWAY)
(STATUS:TRANSMITTING)
GEAR TRANSFER ROLLER
GEAR OPC ROLLER
SPRING PLATE LIFT
GEAR EJECT IDLER
PLATE LIFT PAPER
GEAR CLUCH (ASSY)
(STATUS:IDLING)
MOTOR PINION
GEAR EJECT ROLLER
GEAR HEAT ROLLER
GEAR 1A
GEAR 1B
GEAR ONEWAY 2A
ONEWAY CLUTCH(STATUS:TRANSMITTING)
GEAR DEVELOPER
GEAR FUSER IDLER
GEAR DEV. DRIVE
GEAR OPC DRIVE

- The motor pinion rotates in the direction shown in the figure.
- The gears of fixing and developing parts are driven by the GEAR 1A.
- The GEAR PAPER FEED ROLLER drives the roller.
- The GEAR CLUTCH runs idle and GEAR PICKUP PAPER is still.

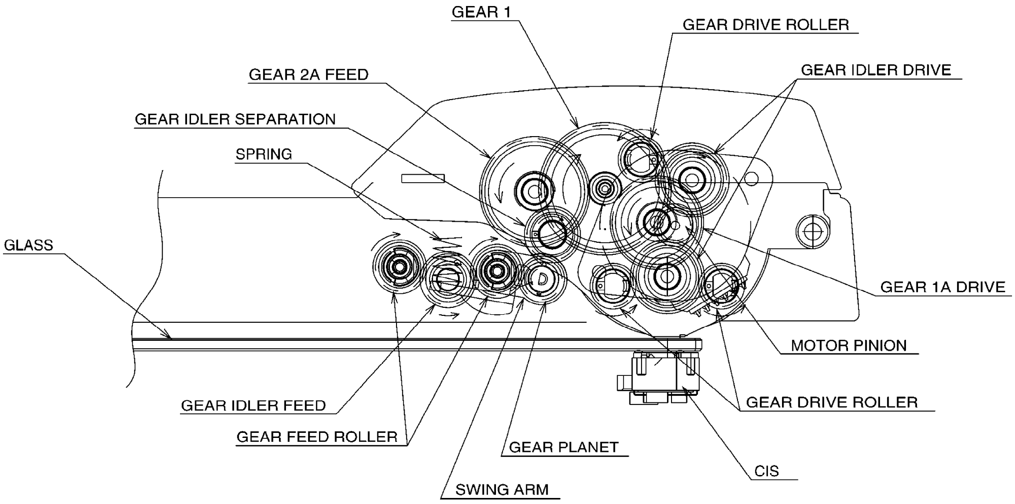
## 4.3. PRINTING (PAPER PICK UP)


GEAR PICKUP PAPER
(1 ROTATION)
CAM
(1 ROTATION)
UP
GEAR CLUCH (ASSY)
(STATUS:TRANSMITTING)
RING
HOOK GEAR FIX
SOLENOID
SPRING SOLENOID

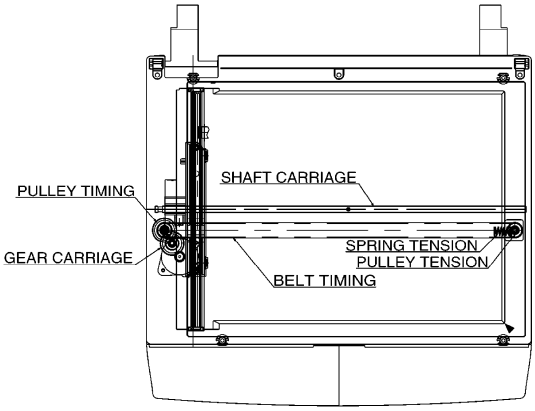
**During printing**

- **When the SOLENOID is turned ON, the HOOK GEAR FIX is hooked on the RING of GEAR CLUTCH. It causes the GEAR PICKUP PAPER to rotate.**
- **At the same time, CAM's rotation lifts up the PLATE LIFT PAPER. The recording paper is pressed by the PICKUP ROLLER and the top paper is separated and fed. Then the PLATE LIFT PAPER is pressed down.**
- **Even the SOLENOID is turned OFF, it can not stop on the way of a turn because the tip of HOOK GEAR FIX is on the CAM of GEAR PICKUP PAPER.**
- **When the tip of HOOK GEAR FIX returns to CAM's home position, the GEAR CLUTCH RING is unhooked, then the GEAR PICKUP PAPER is stopped.**

## 4.4. SCANNING (ADF)


GEAR 1
GEAR DRIVE ROLLER
GEAR 2A FEED
GEAR IDLER DRIVE
GEAR IDLER SEPARATION
SPRING
GLASS
GEAR 1A DRIVE
MOTOR PINION
GEAR IDLER FEED
GEAR DRIVE ROLLER
GEAR FEED ROLLER
GEAR PLANET
CIS
SWING ARM

- **DOCUMENT TRANSMISSION (ADF)**
  **The tip of the document is sent to a point of contact between the separation roller and the separation pad through the document feed roller, then the document is fed there separately. The document transference roller carries the document and the CIS reads it through the glass. The document U-turns along the guide and is exited through the paper exit roller.**


PULLEY TIMING
SHAFT CARRIAGE
GEAR CARRIAGE
SPRING TENSION
PULLEY TENSION
BELT TIMING

**- DOCUMENT TRANSMISSION (SCANNER GLASS)**

**The CIS held in the CIS holder is carried by the belt timing along the shaft carriage to the reading start position.**

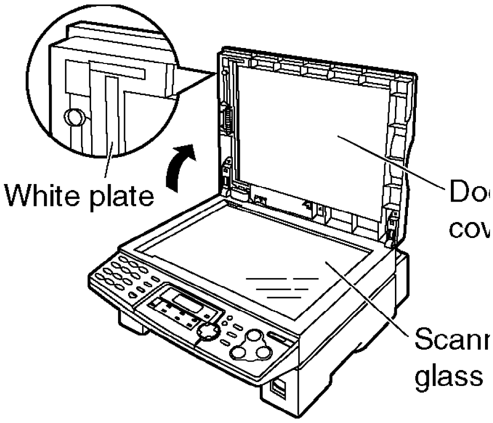
**Then it goes back to the home position reading the document through the glass.**

## 4.5. MAINTENANCE

**If a black line, a white line or a dirty pattern appears on your recording paper, on your original, or on the fax document received by the other party, clean the white plate, scanner glass and lower glass.**

### 4.5.1. WHITE PLATE AND SCANNER GLASS

1. **Open the document cover.**
2. **Clean the white plate and scanner glass with a soft and dry cloth.**
3. **Close the document cover.**


White plate
Do
cov
Scann
glass

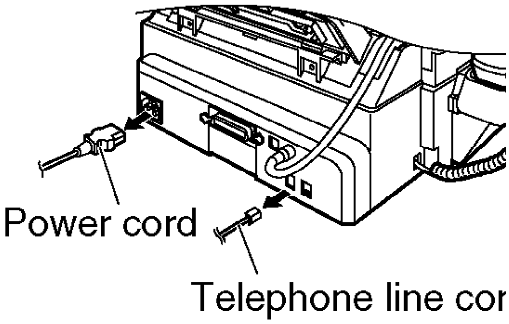
### 4.5.2. LOWER GLASS

**Caution:**

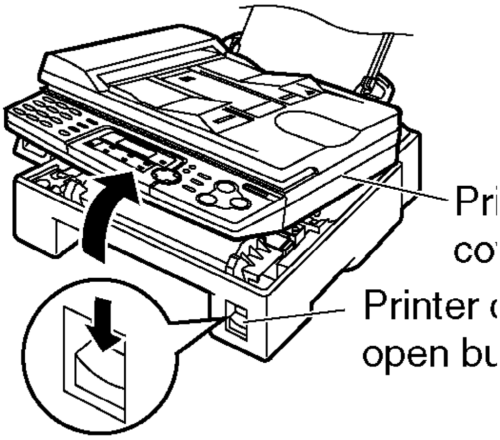
**- Be careful when handling the drum and toner unit.**

**- Do not use paper products, such as paper towels or tissues, to clean the inside of the unit.**

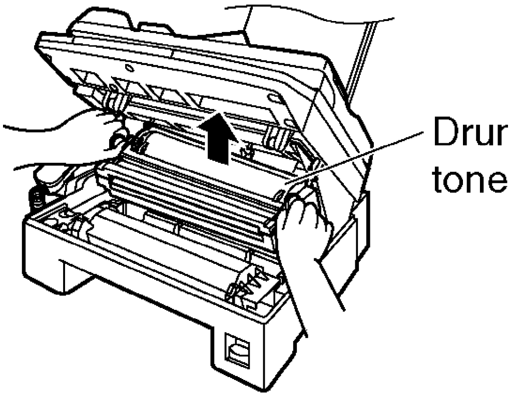
1. **Disconnect the power cord and the telephone line cord.**


Power cord
Telephone line cor

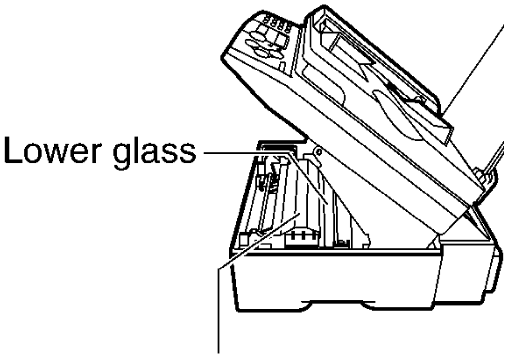
2. **Press down the printer cover open button then open the printer cover.**


Pri
co
Printer
open bu

3. **Remove the drum and toner unit by holding the two tabs.**

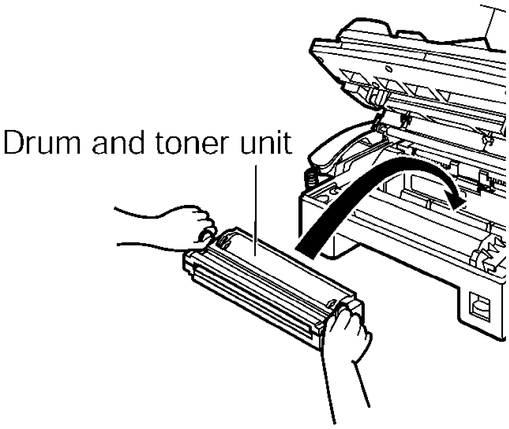


4. **Clean the lower glass with a soft and dry cloth.**

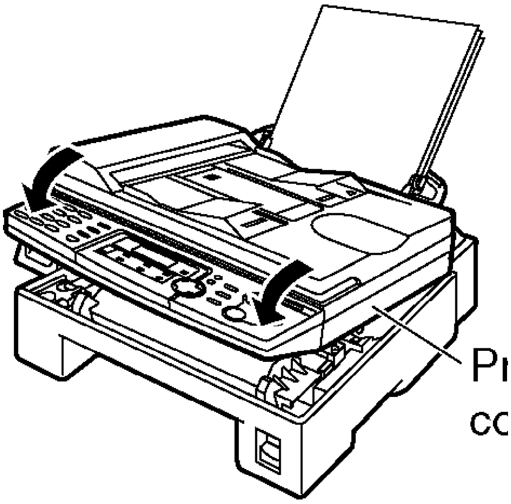

Lower glass

**Caution:**
Do not touch the bottom cover when cleaning the glass. It is very hot.

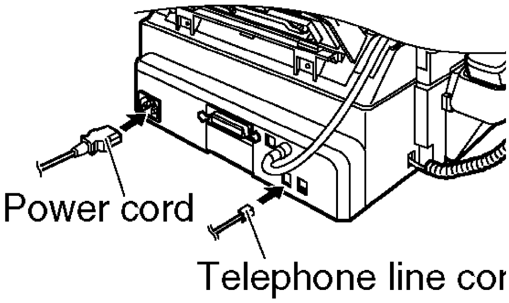
5. **Reinstall the drum and toner unit by holding the tabs.**


Drum and toner unit

6. **Close the printer cover, until locked, by pushing down on both sides.**



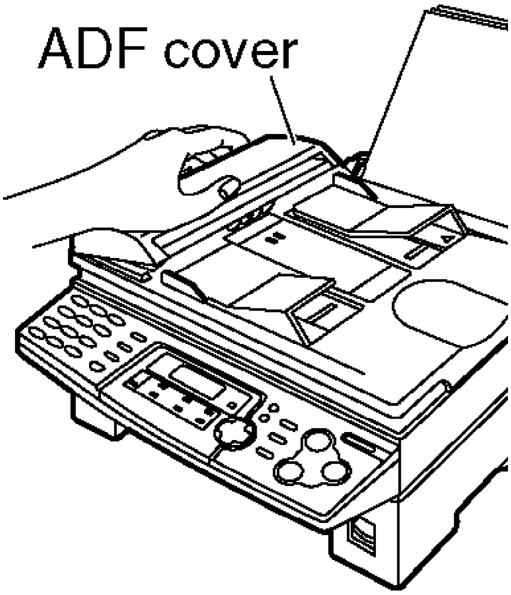
7. **Reconnect the power cord and the telephone line cord.**


Power cord
Telephone line cor

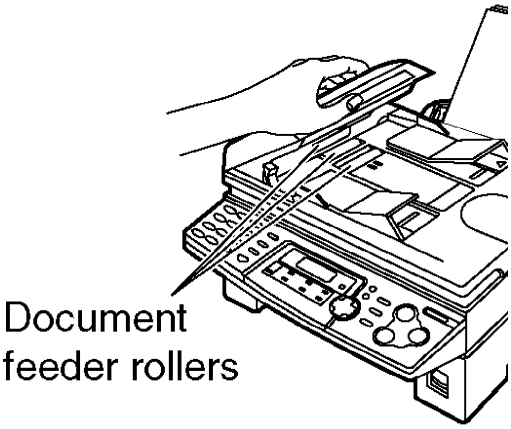
## 4.5.3. DOCUMENT FEEDER ROLLERS

**If misfeeding of your original occurs frequently, clean the document feeder rollers.**

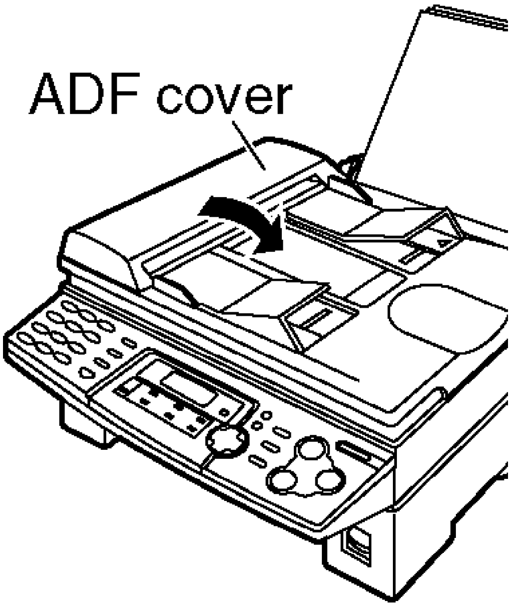
1. **Lift, and hold open the ADF cover.**



2. **Clean the document feeder rollers with a soft and dry cloth.**


Document
feeder rollers

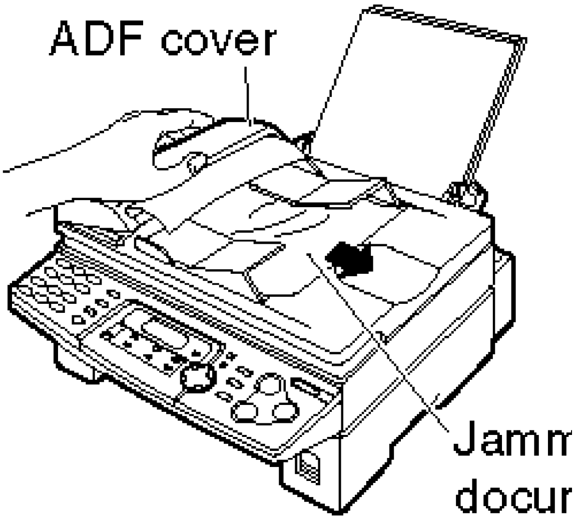
3. **Close the ADF cover.**



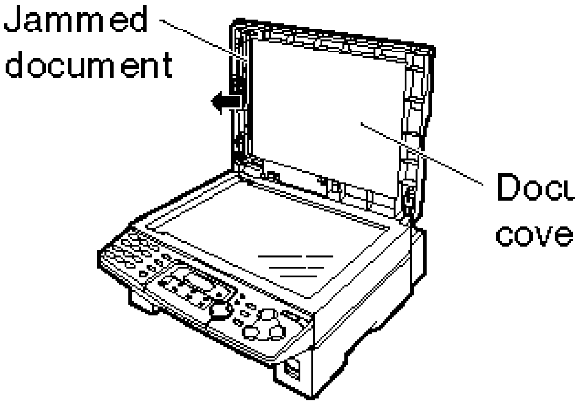
## 4.6. DOCUMENT JAMS

**If the unit does not release the document during feeding, remove the jammed document as follows.**

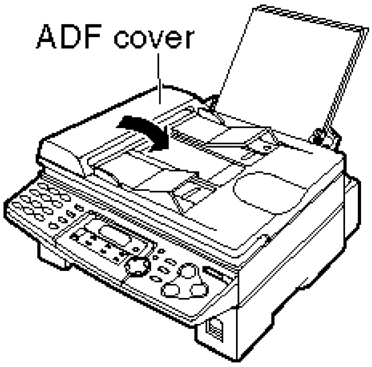
1. **Lift, and hold open the ADF cover.**
   **-Do not pull out the jammed document forcibly before lifting the ADF cover.**


ADF cover
Jamm
docu

2. **Remove the jammed document carefully.**
   **-If you cannot remove the jammed document, open the document cover, remove the document, then close the document cover.**


Jammed
document
Docu
cove

3. **Close the ADF cover.**



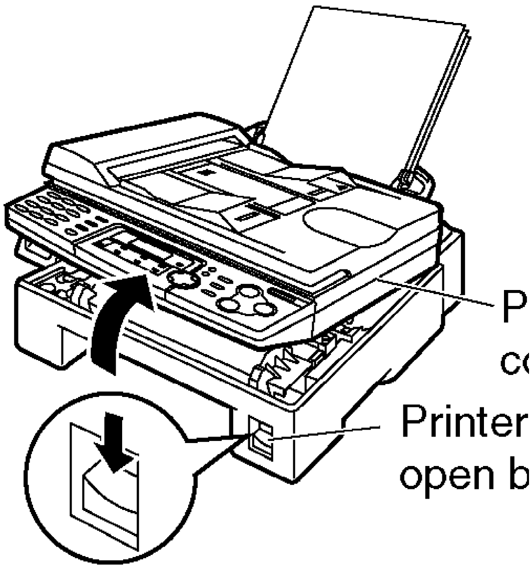
# 4.7. RECORDING PAPER JAMS

## 4.7.1. When the recording paper has jammed in the unit

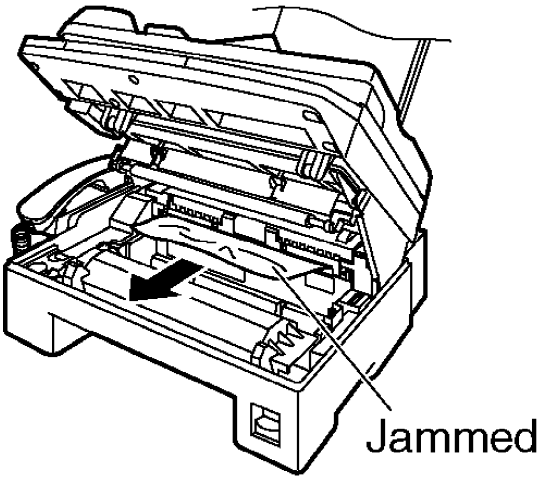
**The display will show the following.**

Display: `PAPER JAMMED`

1. **Press down the printer cover open button then open the printer cover.**

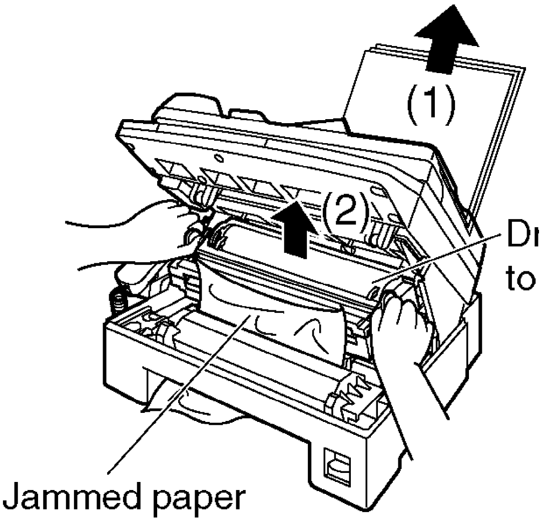


2. **Remove the jammed paper.**
   **When the recording paper has jammed near the drum and toner unit:**
   **Remove the jammed paper carefully by pulling it toward you.**

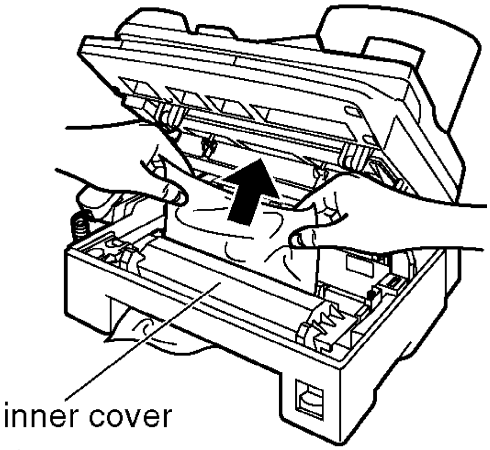


**When the recording paper has jammed near the recording paper exit:**

**1.) Remove the recording paper (1), then remove the drum and toner unit to allow the jammed paper to pull free from the rear cabinet (2)**

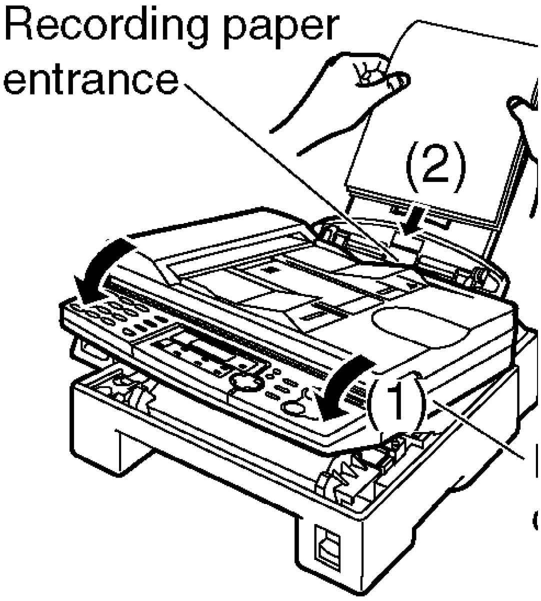

(1)
(2)
D
to
Jammed paper

**2.) Remove the jammed paper from the fuser unit by pulling it upwards carefully.**


inner cover

**Caution:**
**Do not touch the botto**
**inner cover. It is very h**

3. **Close the printer cover by pushing down on both sides until locked (1). Straighten and reinsert the recording paper into the recording paper entrance (2).**

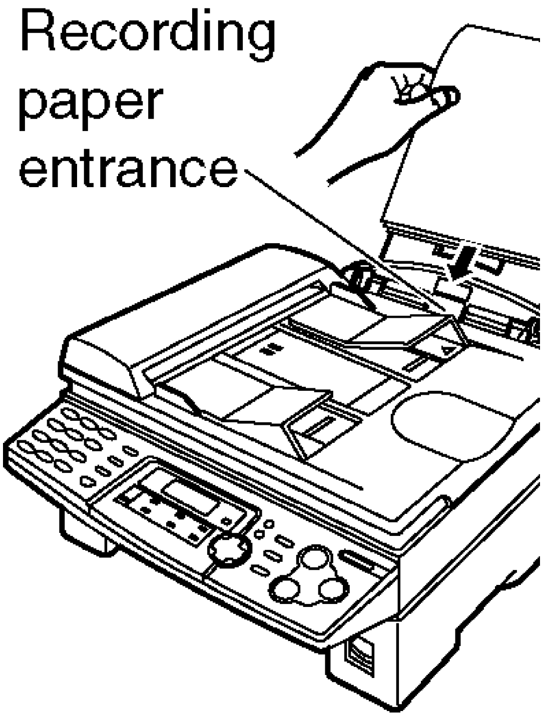

Recording paper
entrance
(2)
(1)

### 4.7.2. When the recording paper is not fed into the unit properly

**The display will show the following.**

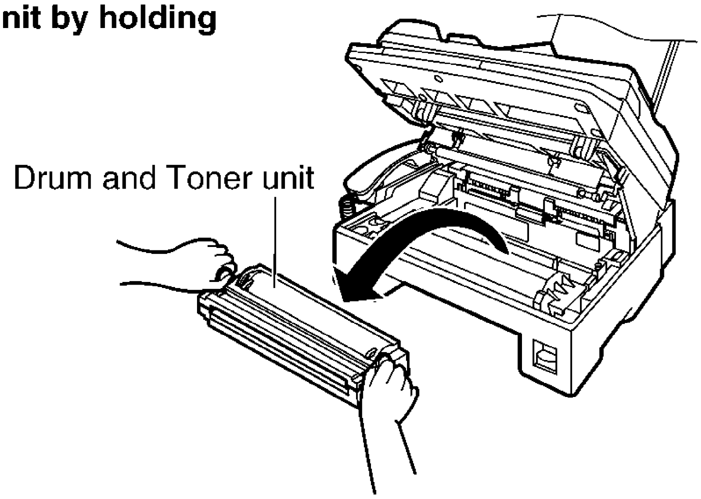
Display: `FAILED PICK UP`

**Remove the recording paper. Straighten and reinsert it into the recording paper entrance.**

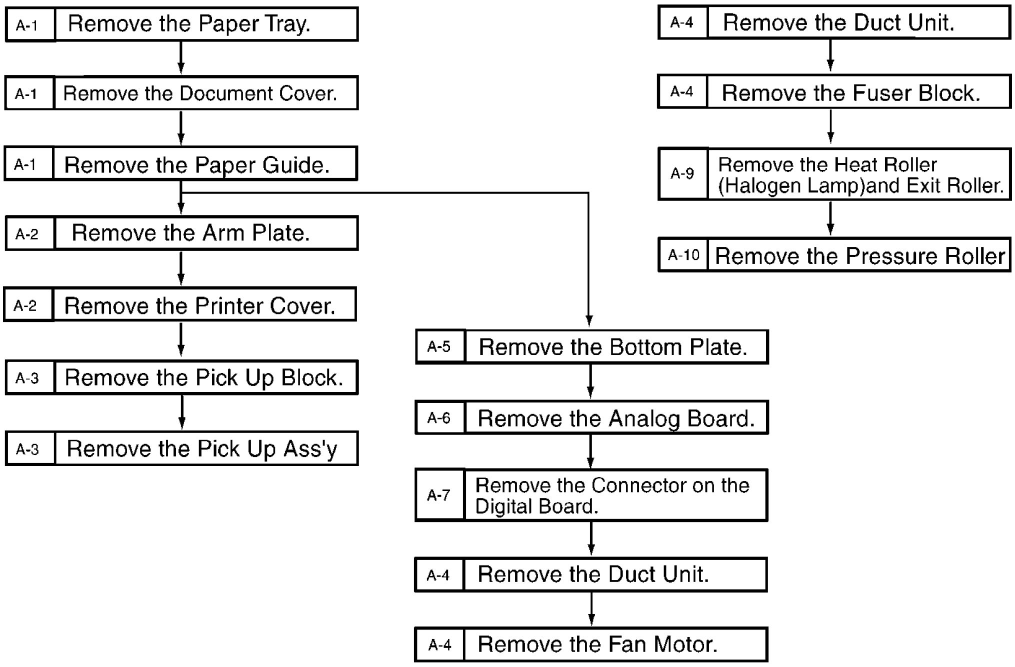

Recording paper entrance

# 5. DISASSEMBLY INSTRUCTIONS

**Before disassembling, remove the Drum and Toner unit by holding the two tabs.**


Drum and Toner unit

## 5.1. UPPER MAIN CABINET SECTION


A-1 Remove the Paper Tray.
A-1 Remove the Document Cover.
A-1 Remove the Paper Guide.
A-2 Remove the Arm Plate.
A-2 Remove the Printer Cover.
A-3 Remove the Pick Up Block.
A-3 Remove the Pick Up Ass'y
A-5 Remove the Bottom Plate.
A-6 Remove the Analog Board.
A-7 Remove the Connector on the Digital Board.
A-4 Remove the Duct Unit.
A-4 Remove the Fan Motor.
A-4 Remove the Duct Unit.
A-4 Remove the Fuser Block.
A-9 Remove the Heat Roller (Halogen Lamp)and Exit Roller.
A-10 Remove the Pressure Roller

**CROSS REFERENCE:**

**A1:** HOW TO REMOVE THE PAPER TRAY, DOCUMENT COVER AND PAPER GUIDE **()**

**A2:** HOW TO REMOVE THE PRINTER COVER **()**

**A3:** HOW TO REMOVE THE PICK UP ROLLER ASS'Y **()**

**A4:** HOW TO REMOVE THE DUCT UNIT AND FAN MOTOR **()**

**A5:** HOW TO REMOVE THE BOTTOM PLATE **()**

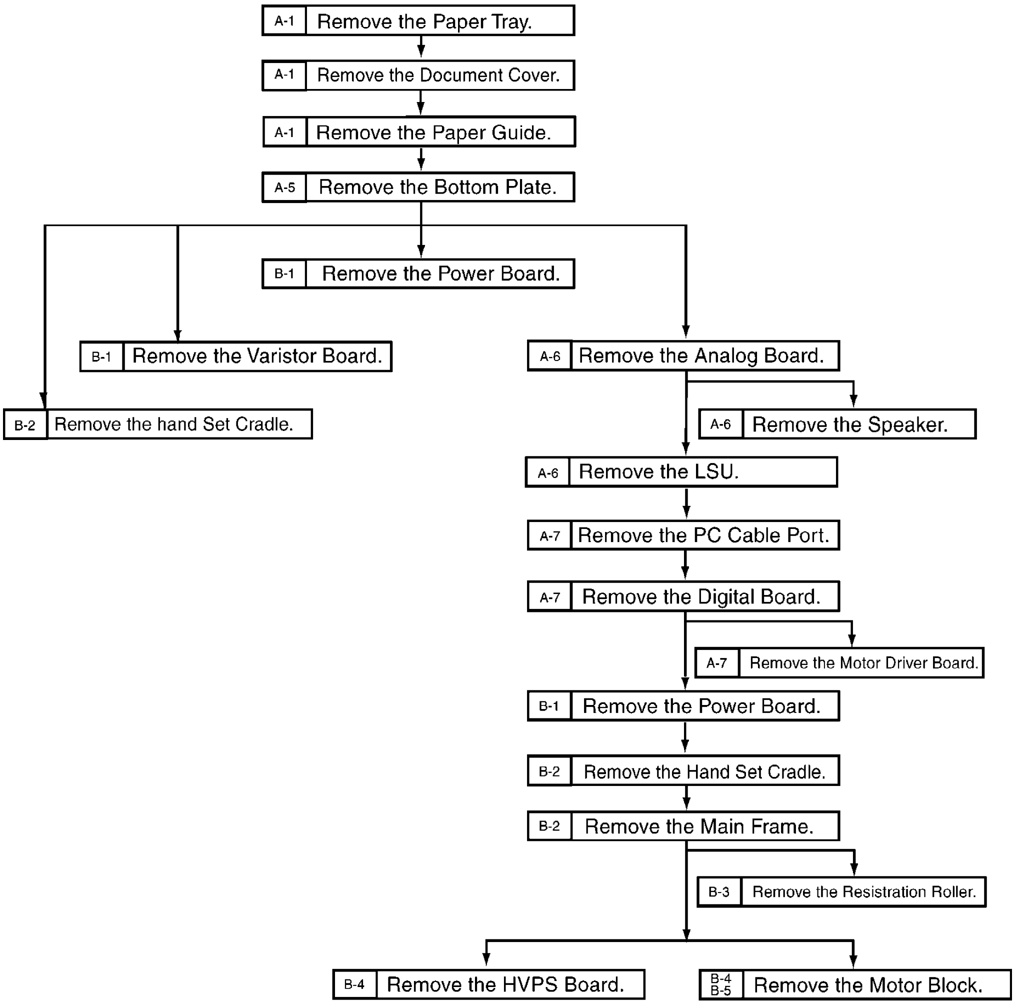
**A6:** HOW TO REMOVE THE ANALOG BOARD AND LSU **()**

**A7:** HOW TO REMOVE THE DIGITAL BOARD AND MOTOR DRIVER BOARD **()**

**A9:** HOW TO REMOVE THE HEAT ROLLER AND EXIT ROLLER **()**

**A10:** HOW TO REMOVE THE PRESSURE ROLLER **()**

## 5.2. LOWER MAIN CABINET SECTION


A-1 Remove the Paper Tray.
A-1 Remove the Document Cover.
A-1 Remove the Paper Guide.
A-5 Remove the Bottom Plate.
B-1 Remove the Power Board.
B-1 Remove the Varistor Board.
A-6 Remove the Analog Board.
B-2 Remove the hand Set Cradle.
A-6 Remove the Speaker.
A-6 Remove the LSU.
A-7 Remove the PC Cable Port.
A-7 Remove the Digital Board.
A-7 Remove the Motor Driver Board.
B-1 Remove the Power Board.
B-2 Remove the Hand Set Cradle.
B-2 Remove the Main Frame.
B-3 Remove the Resistration Roller.
B-4 Remove the HVPS Board.
B-4 B-5 Remove the Motor Block.

**CROSS REFERENCE:**

**A1:** HOW TO REMOVE THE PAPER TRAY, DOCUMENT COVER AND PAPER GUIDE **()**

**A5:** HOW TO REMOVE THE BOTTOM PLATE **()**

**A6:** HOW TO REMOVE THE ANALOG BOARD AND LSU **()**

**A7:** HOW TO REMOVE THE DIGITAL BOARD AND MOTOR DRIVER BOARD **()**

**B1:** HOW TO REMOVE THE POWER BOARD, AND VARISTOR BOARD AND AC INLET **()**

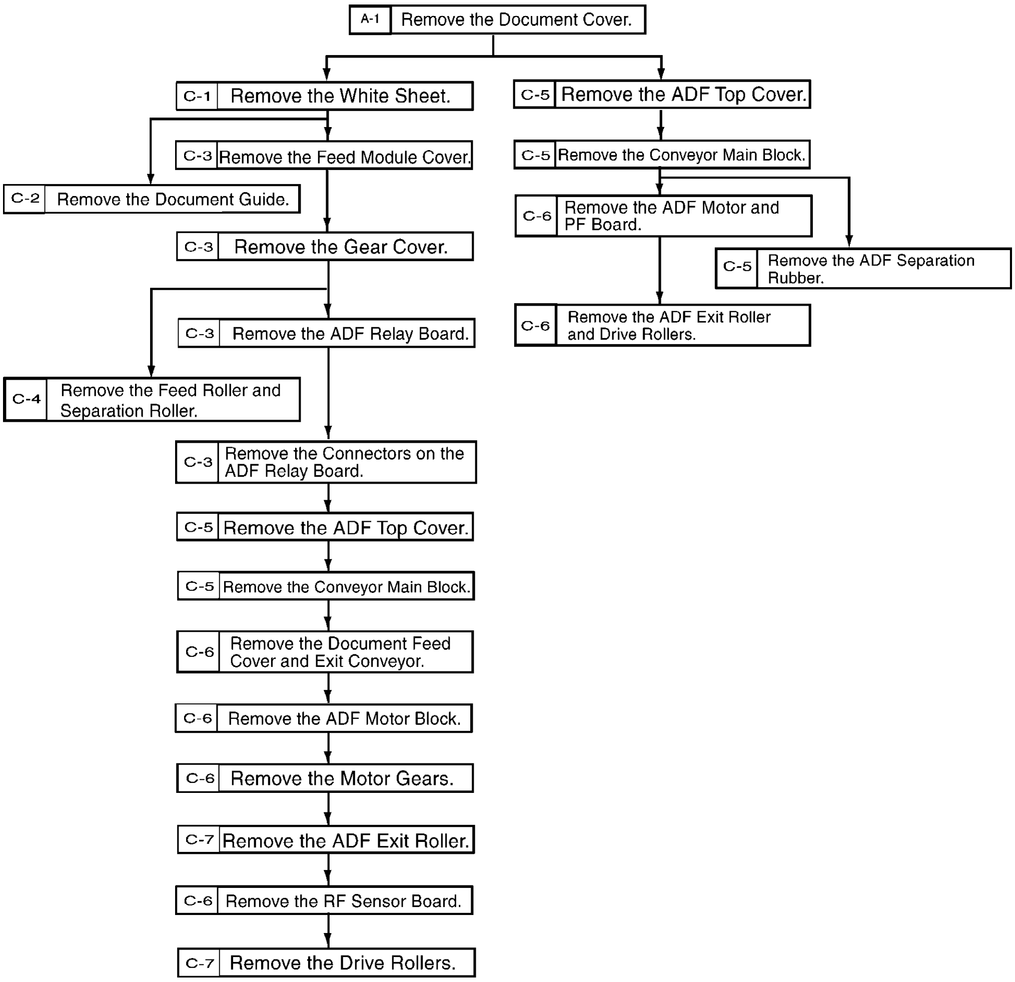
**B2:** HOW TO REMOVE THE MAIN FRAME **()**

**B3:** HOW TO REMOVE THE REGISTRATION ROLLER **()**

**B4:** HOW TO REMOVE THE H.V.P.S **()**

**B5:** HOW TO REMOVE THE MOTOR BLOCK **()**

## 5.3. DOCUMENT COVER (ADF) SECTION


A-1 Remove the Document Cover.
C-1 Remove the White Sheet.
C-5 Remove the ADF Top Cover.
C-3 Remove the Feed Module Cover.
C-5 Remove the Conveyor Main Block.
C-2 Remove the Document Guide.
C-6 Remove the ADF Motor and PF Board.
C-3 Remove the Gear Cover.
C-5 Remove the ADF Separation Rubber.
C-3 Remove the ADF Relay Board.
C-6 Remove the ADF Exit Roller and Drive Rollers.
C-4 Remove the Feed Roller and Separation Roller.
C-3 Remove the Connectors on the ADF Relay Board.
C-5 Remove the ADF Top Cover.
C-5 Remove the Conveyor Main Block.
C-6 Remove the Document Feed Cover and Exit Conveyor.
C-6 Remove the ADF Motor Block.
C-6 Remove the Motor Gears.
C-7 Remove the ADF Exit Roller.
C-6 Remove the RF Sensor Board.
C-7 Remove the Drive Rollers.

**CROSS REFERENCE:**

**A1: HOW TO REMOVE THE PAPER TRAY, DOCUMENT COVER AND PAPER GUIDE ()**

**C1: HOW TO REMOVE THE WHITE SHEET ()**

**C2: HOW TO REMOVE THE DOCUMENT GUIDE ()**

**C3: HOW TO REMOVE THE ADF RELAY BOARD ()**

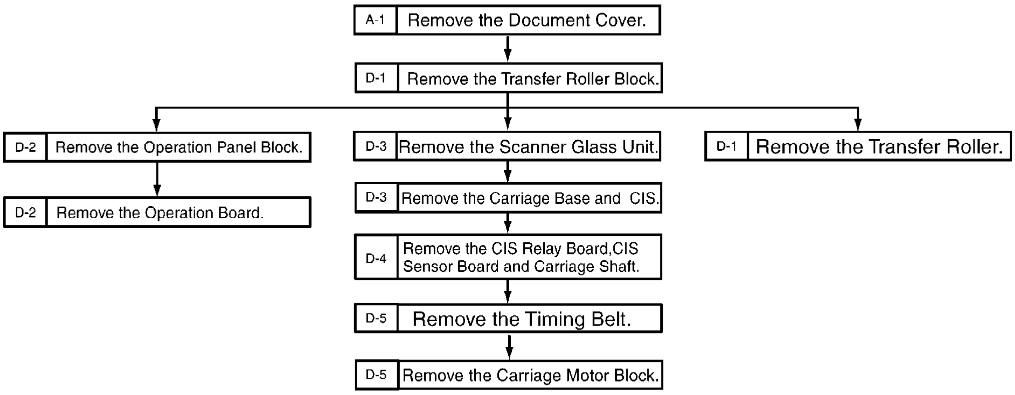
**C4: HOW TO REMOVE THE FEED ROLLER AND ADF SEPARATION ROLLER ()**

**C5: HOW TO REMOVE THE TOP COVER AND CONVEYOR BLOCK ()**

**C6: HOW TO REMOVE THE ADF MOTOR AND PF SENSOR BOARD ()**

**C7: HOW TO REMOVE THE ADF EXIT ROLLER AND DRIVE ROLLER ()**

## 5.4. PRINTER COVER SECTION


A-1 Remove the Document Cover.
D-1 Remove the Transfer Roller Block.
D-2 Remove the Operation Panel Block.
D-3 Remove the Scanner Glass Unit.
D-1 Remove the Transfer Roller.
D-2 Remove the Operation Board.
D-3 Remove the Carriage Base and CIS.
D-4 Remove the CIS Relay Board,CIS Sensor Board and Carriage Shaft.
D-5 Remove the Timing Belt.
D-5 Remove the Carriage Motor Block.

**CROSS REFERENCE:**

**A1:** HOW TO REMOVE THE PAPER TRAY, DOCUMENT COVER AND PAPER GUIDE **()**

**D1:** HOW TO REMOVE THE TRANSFER ROLLER **()**

**D2:** HOW TO REMOVE THE OPERATION BOARD **()**

**D3:** HOW TO REMOVE THE SCANNER GLASS UNIT AND CIS **()**

**D4:** HOW TO REMOVE THE CIS RELAY BOARD AND CIS SENSOR BOARD **()**

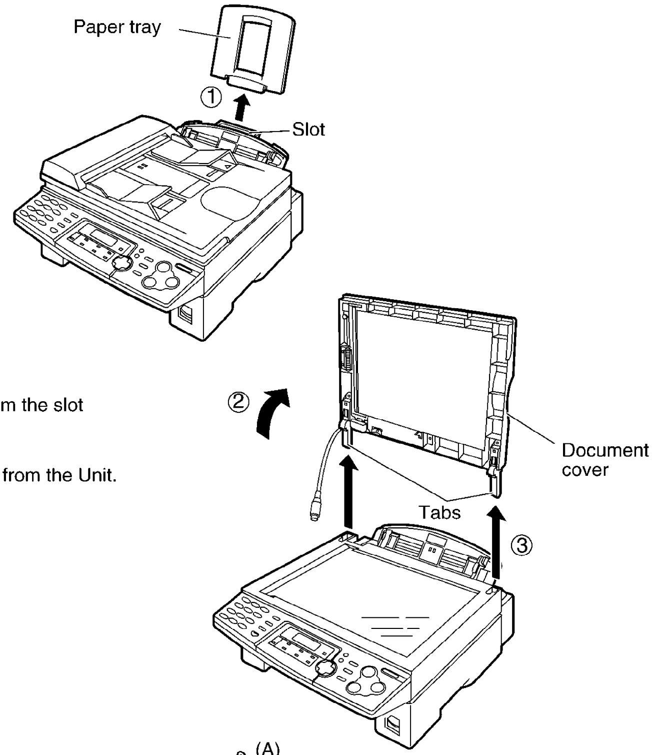
**D5:** HOW TO REMOVE THE CARRIAGE MOTOR AND SCAN MOTOR DRIVE BOARD **()**

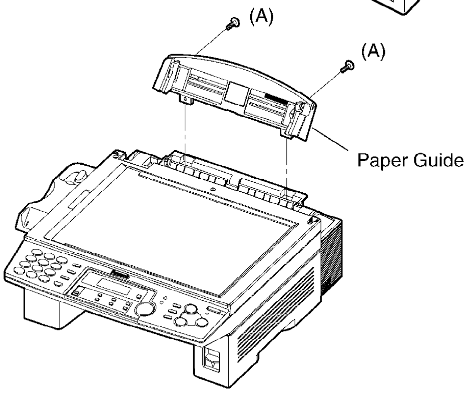
## 5.5. HOW TO REMOVE THE PAPER TRAY, DOCUMENT COVER AND PAPER GUIDE

**PROCEDURE: A-1**

**REF.NO.A-1**

1) Remove the Paper Tray from the slot on the back of the unit.
2) Open the Document Cover.
3) Lift up the Document Cover from the Unit.
4) Remove the 2 screws (A).
5) Remove the Paper Guide.


Paper tray
①
Slot
②
Document cover
Tabs
③


(A)
(A)
Paper Guide

## 5.6. HOW TO REMOVE THE PRINTER COVER

**PROCEDURE: A-1-->A-2**

**REF.NO.A-2**

1) Open the Printer Cover.
2) Remove the 2 screws (A). (Fig-1)
3) Push down the Arm Plate. (Fig-2)
4) Insert the small driver as illustrated in Fig-3.
5) Close the Printer Cover with the driver remaining like fig-4 and raise it with the driver. (Fig-4)
6) Lift up the Printer Cover. (Fig-5)

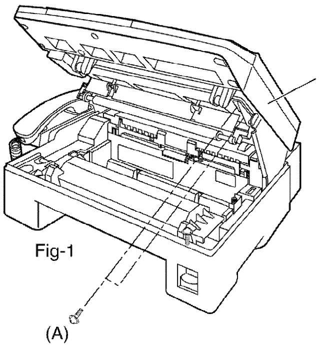

Printer cover
(A)

Fig-1

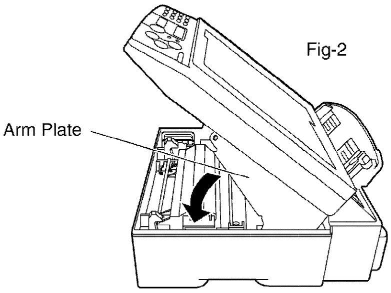


Fig-2

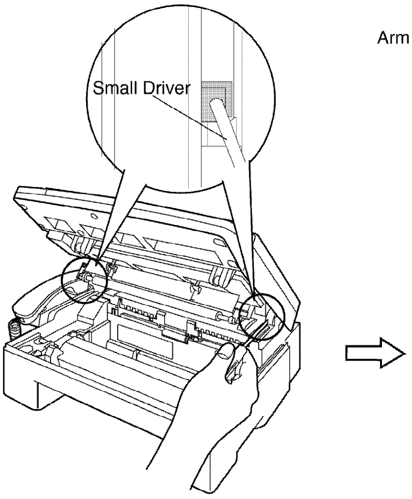

Small Driver

Fig-3

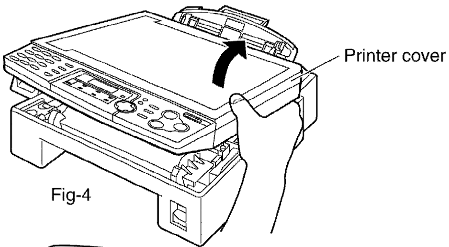

Printer cover

Fig-4

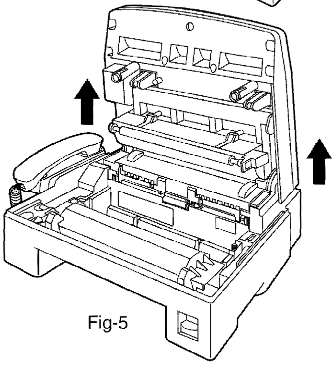


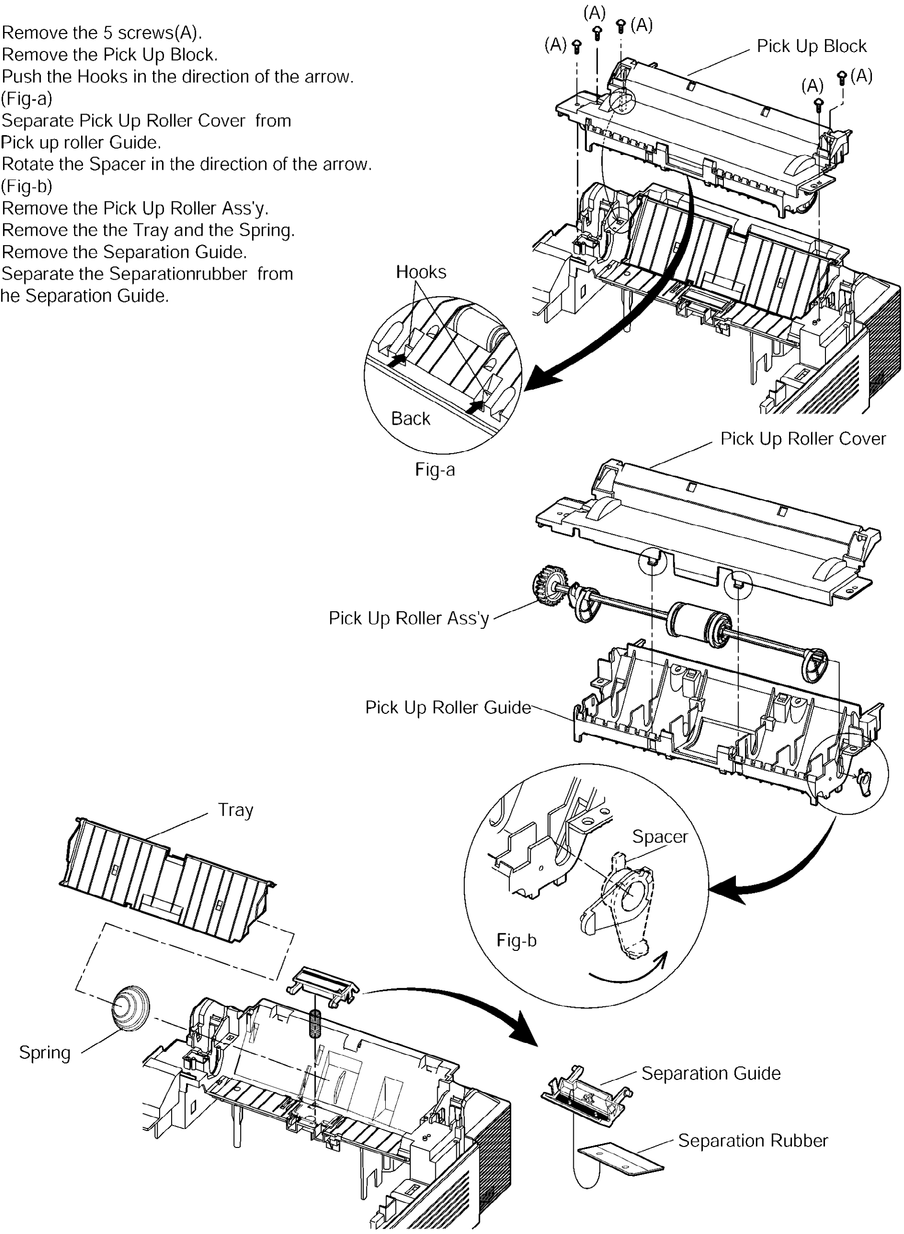
Fig-5

## 5.7. HOW TO REMOVE THE PICK UP ROLLER ASS’Y

**PROCEDURE: A-1--> A-2--> A-3**

**REF.NO.A-3**

1) Remove the 5 screws(A).
2) Remove the Pick Up Block.
3) Push the Hooks in the direction of the arrow. (Fig-a)
4) Separate Pick Up Roller Cover from Pick up roller Guide.
5) Rotate the Spacer in the direction of the arrow. (Fig-b)
6) Remove the Pick Up Roller Ass'y.
7) Remove the the Tray and the Spring.
8) Remove the Separation Guide.
9) Separate the Separationrubber from the Separation Guide.

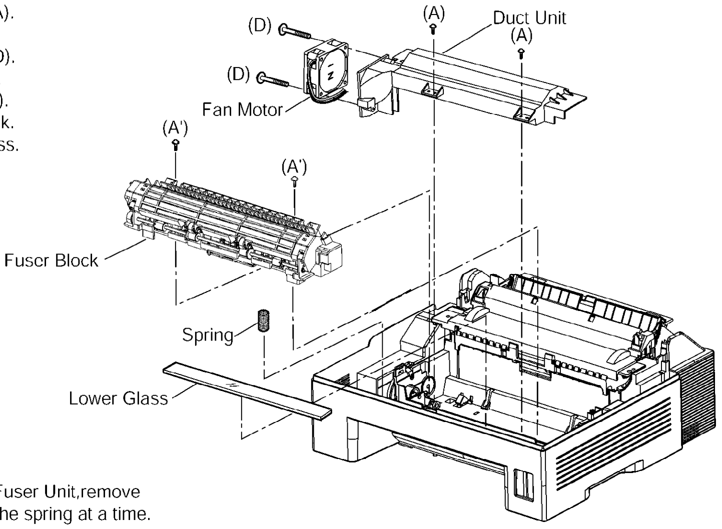

(A)
(A)
(A)
Pick Up Block
(A)
(A)
Hooks
Back
Fig-a
Pick Up Roller Cover
Pick Up Roller Ass'y
Pick Up Roller Guide
Tray
Spacer
Fig-b
Spring
Separation Guide
Separation Rubber

## 5.8. HOW TO REMOVE THE DUCT UNIT AND FAN MOTOR

**PROCEDURE: A-1--> A-2--> A5--> A6--> A7--> A4**

**REF.NO.A-4**

1) Remove the 2 screws(A).
2) Remove the Duct Unit.
3) Remove the 2 screws(D).
4) Remove the Fan Motor.
5) Remove the 2 screw(A').
6) Remove the Fuser Block.
7) Remove the Lower Glass.
8) Remove the Spring.


(D)
(A)
Duct Unit
(A)
(D)
Fan Motor
(A')
(A')
Fuser Block
Spring
Lower Glass

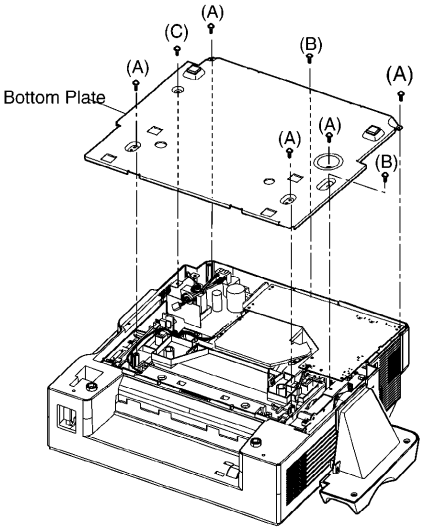
Note: When removing the Fuser Unit,remove the lower glass and the spring at a time.

## 5.9. HOW TO REMOVE THE BOTTOM PLATE

**PROCEDURE: A1--> A-5**

**REF.NO.A-5**

1) Remove the 5 screws (A).
2) Remove the 2 screws (B).
3) Remove the screw (C).
4) Remove the Bottom Plate.

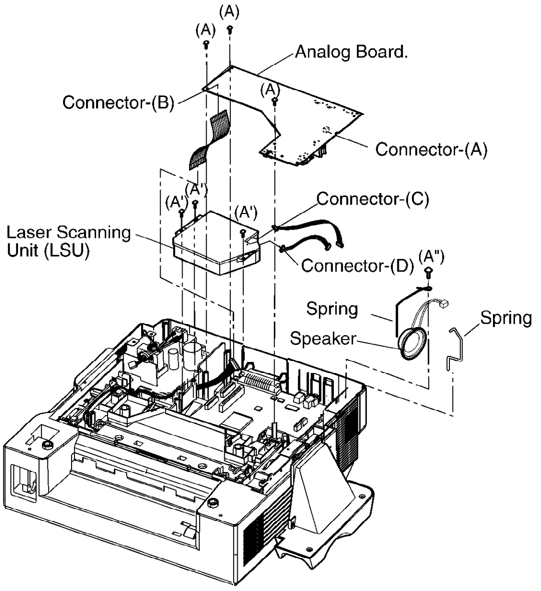

(A)
(C)
(B)
(A)
(A)
Bottom Plate
(A)
(A)
(B)

## 5.10. HOW TO REMOVE THE ANALOG BOARD AND LSU

**PROCEDURE: A-1--> A-5--> A-6**

**REF.NO.A-6**

1) Remove the 3 screws (A).
2) Remove the Connector-(A) ,then remove the Connector- (B).
3) Remove the Analog Board.
4) Remove the 3 screws (A').
5) Remove the Connector-(C) and (D).
6) Remove the Laser Scanning Unit.
7) Remove the screw (A").
8) Remove the 2 Springs and the Speaker

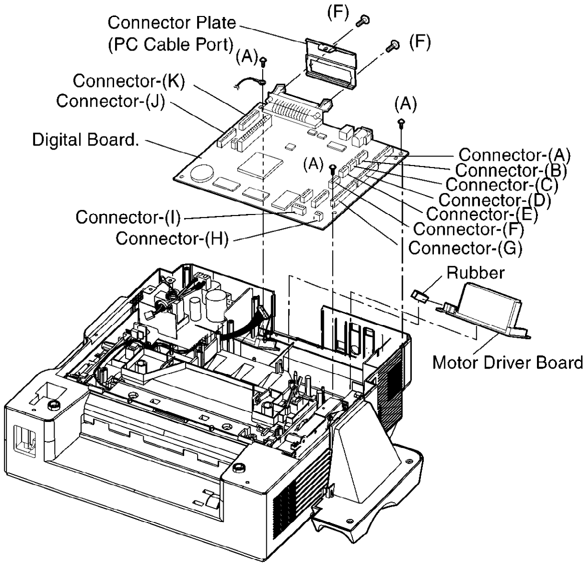

(A)
(A)
Analog Board.
(A)
Connector-(B)
Connector-(A)
(A')
(A')
(A')
Connector-(C)
Laser Scanning
Unit (LSU)
Connector-(D)
(A")
Spring
Spring
Speaker

## 5.11. HOW TO REMOVE THE DIGITAL BOARD AND MOTOR DRIVER BOARD

**PROCEDURE: A-1--> A-5--> A-6--> A-7**

**REF.NO.A-7**

1) Remove the 2 screws (F).
2) Remove the Connector Plate.
3) Remove the 3 screws (A).
4) Remove 11 Connectors (A)~(K).
5) Remove the Digital Board.
6) Take out the Rubber.
7) Remove the Motor Driver Board.

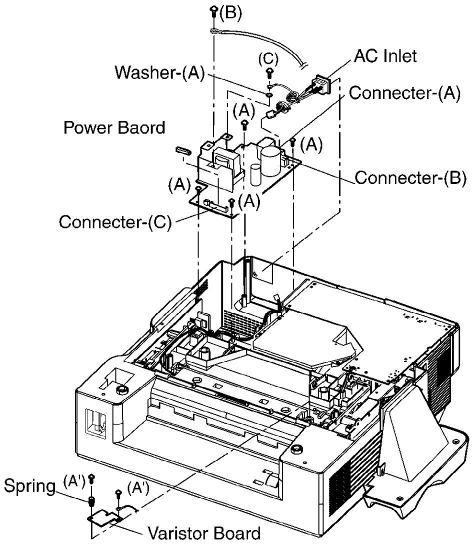

Connector Plate
(PC Cable Port)
(F)
(F)
(A)
Connector-(K)
Connector-(J)
(A)
Digital Board.
(A)
Connector-(A)
Connector-(B)
Connector-(C)
Connector-(D)
Connector-(E)
Connector-(F)
Connector-(G)
Connector-(I)
Connector-(H)
Rubber
Motor Driver Board

## 5.12. HOW TO REMOVE THE POWER BOARD, AND VARISTOR BOARD AND AC INLET

**PROCEDURE: A-1--> A-5--> B-1**

**REF.NO.B-1**

1) Remove the Connecter-(A).
2) Remove the screw(C) and Waser-(A).
3) Remove the AC Inlet.
4) Remover the 4 screws (A).
5) Remove the Connecter-(B) and (C).
6) Remove the screw (B).
7) Remove the Power Baord.
8) Remove the 2 screw(A').
9) Remove the Spring.
10) Remove the Varistor Board.

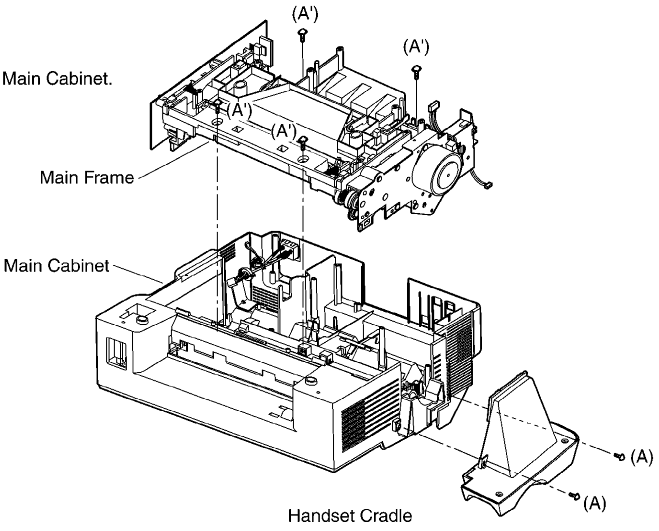

(B)
Washer-(A)
(C)
AC Inlet
Connecter-(A)
(A)
Power Baord
(A)
Connecter-(B)
(A)
(A)
Connecter-(C)
Spring
(A')
(A')
Varistor Board

## 5.13. HOW TO REMOVE THE MAIN FRAME

**PROCEDURE: A-1--> A-4--> A-5--> A-6--> A-7--> B-1--> B-2**

**REF.NO.B-2**

1) Remove the 2 screws (A).
2) Remove the Handset Cradle.
3) Remove the 4 screws (A').
2) Lift up the Main Frame From the Main Cabinet.

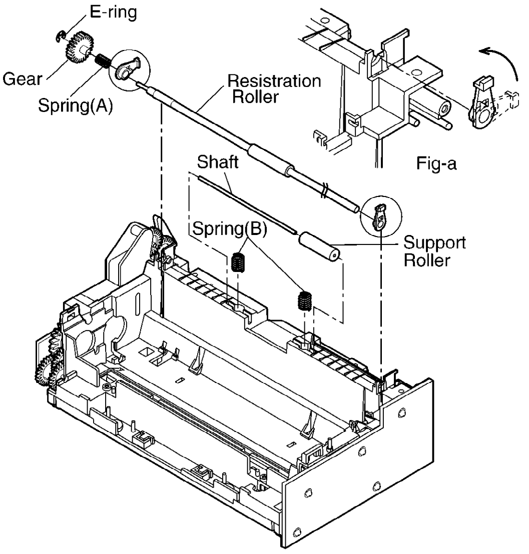

(A')
(A')
(A')
(A')
Main Frame
Main Cabinet
(A)
(A)
Handset Cradle

## 5.14. HOW TO REMOVE THE REGISTRATION ROLLER

**PROCEDURE: A-1--> A-4--> A-5--> A-6--> A-7--> B-1--> B-2--> B-3**

**REF.NO.B-3**

1) Rotate the Spacer in the direction of the arrow. (Fig-a)
2) Remove the E-ring
4) Remove the Spring (A).
5) Remove the Resistration Roller.
6) Remove the Support Roller and the Shaft.
7) Remove the 2 Springs (B).

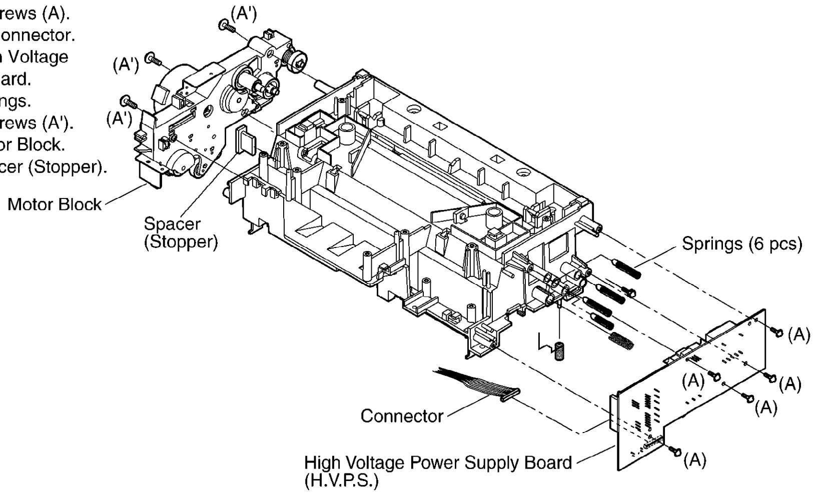

E-ring
Gear
Spring(A)
Resistration Roller
Shaft
Fig-a
Spring(B)
Support Roller

## 5.15. HOW TO REMOVE THE H.V.P.S

**PROCEDURE: A-1--> A-4--> A-5--> A-6--> A-7--> B-1--> B-2--> B-4**

**REF.NO.B-4**

1) Remove the 5 screws (A).
2) Disconnect the Connector.
3) Remove the High Voltage Power Supply Board.
4) Remove the Springs.
5) Remove the 3 screws (A').
6) Remove the Motor Block.
7) Remove the Spacer (Stopper).

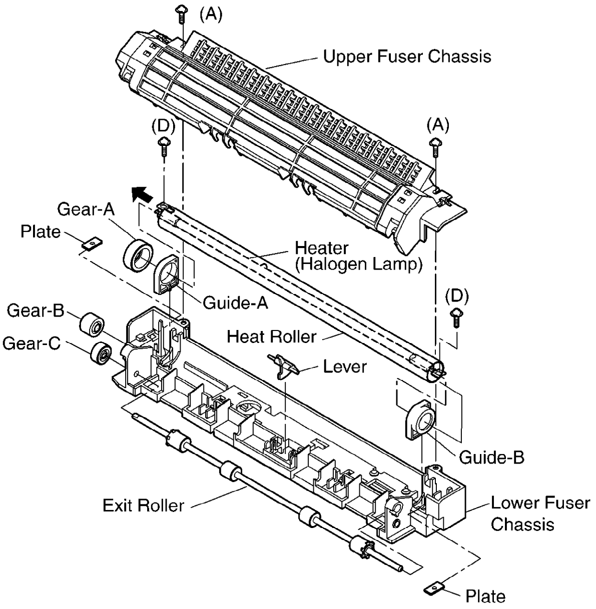

(A')
(A')
(A')
Motor Block
Spacer (Stopper)
Springs (6 pcs)
(A)
(A)
(A)
(A)
(A)
Connector
High Voltage Power Supply Board (H.V.P.S.)

## 5.16. HOW TO REMOVE THE HEAT ROLLER AND EXIT ROLLER

**PROCEDURE: A-1--> A-2--> A-4--> A-9**

**REF.NO.A-9**

1) Remove the 2 screws (A).
2) Remove the Upper Fuser Chassis.
3) Remove the 2 screws (D).
4) Remove the Heat Roller.
5) Pull out the Heater in the direction of the arrow as shown to take it out of the Heat Guide.
   ***Do not touch the glass part of the Heater (Halogen Lamp).**
6) Remove the Gear-A, Guide-A ,B and the Plates.
7) Remove the Gear-B and C.
8) Remove the Exit Roller.

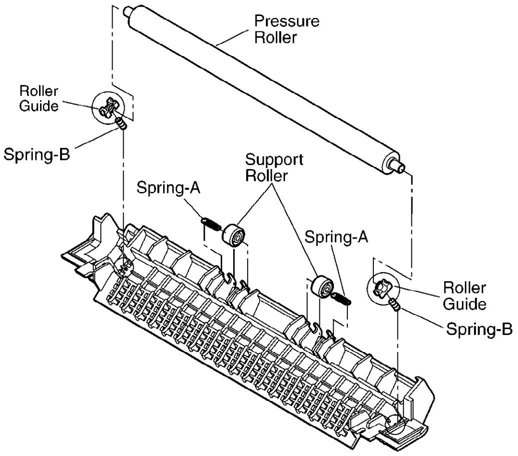

(A)
Upper Fuser Chassis
(D)
(A)
Gear-A
Plate
Heater
(Halogen Lamp)
Guide-A
Gear-B
Gear-C
(D)
Heat Roller
Lever
Guide-B
Exit Roller
Lower Fuser
Chassis
Plate

# 5.17. HOW TO REMOVE THE PRESSURE ROLLER

**PROCEDURE: A-1--> A-2--> A-4--> A-9--> A-10**

**REF.NO.A-10**

1) Remove the 2 Springs-(A) and 2 Support Rollers.
2) Remove the 2 Roller Guides.
3) Remove the Pressure Roller.
4) Remove the 2 Springs-(B).

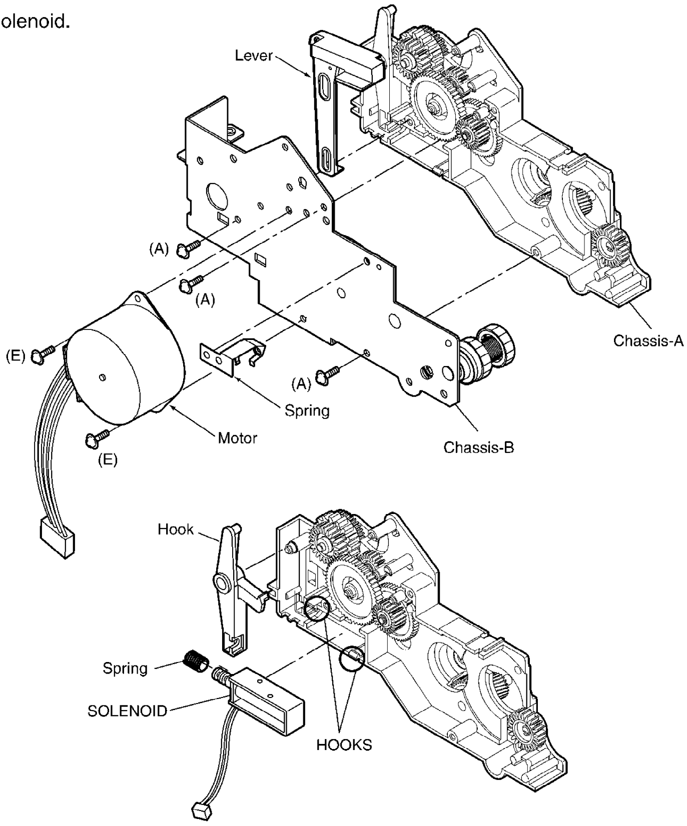

Pressure
Roller
Roller
Guide
Spring-B
Support
Roller
Spring-A
Spring-A
Roller
Guide
Spring-B

# 5.18. HOW TO REMOVE THE MOTOR BLOCK

**PROCEDURE: A-1--> A-5--> A-6--> A-7--> B-1--> B-2--> B-4--> B-5**

**REF.NO.B-5**

1) Remove the 2 screws (E).
2) Remove the Motor.
3) Remove the 3 screws (A).
4) Separate the Chassis-B from the Chassis-A.
5) Remove the Lever.
6) Unhook and remove the Solenoid.
7) Remove the Spring.

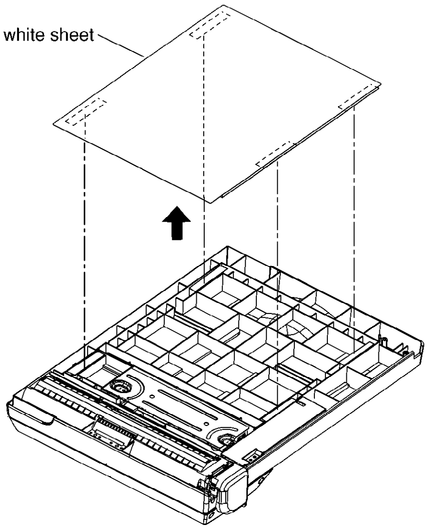

Lever
(A)
(A)
(E)
(A)
Spring
Motor
(E)
Chassis-A
Chassis-B
Hook
Spring
SOLENOID
HOOKS

## 5.19. HOW TO REMOVE THE WHITE SHEET

**PROCEDURE: A-1--> C-1**

**REF.NO.C-1**

1) Remove the white sheet.

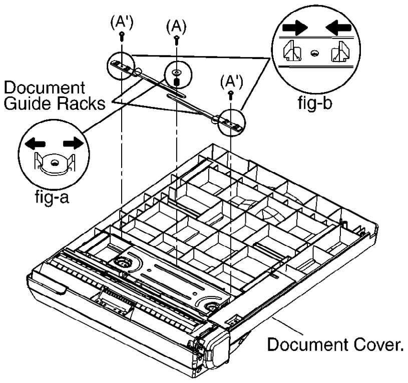

white sheet

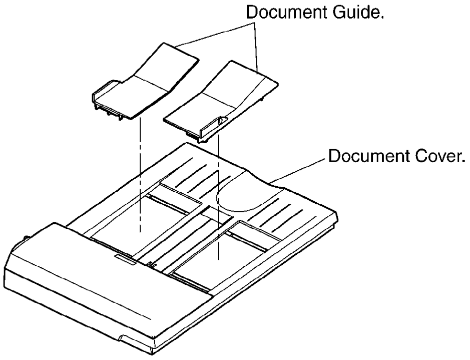
## 5.20. HOW TO REMOVE THE DOCUMENT GUIDE

**PROCEDURE: A-1--> C-1--> C-2**

**REF.NO.C-2**

1) Remove the 1 screw (A)
2) Release the washer from the hooks.
   by pushing in derection of illustrated in fig-a.
3) Remove the 2 screws (A').
4) Release the 2 hooks as shown in fig-b
5) Remove the Document Guide Racks.
6) Reverse the Document Cover.
7) Lift up the 2 Document Guide from
   Document Cover.


(A')
(A)
(A')
Document Guide Racks
fig-a
fig-b
Document Cover.

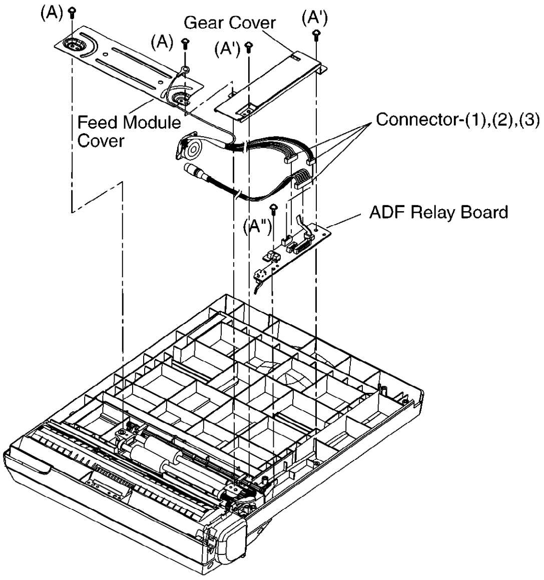

Document Guide.
Document Cover.

## 5.21. HOW TO REMOVE THE ADF RELAY BOARD

**PROCEDURE: A-1--> C-1--> C-3**

**REF.NO.C-3**

1) Remove the 2 screws (A).
2) Remove the Feed Module Cover.
3) Remove the 2 screws (A').
4) Remove the Gear Cover.
5) Remove the Connector-(1),(2),(3).
6) Remove the 1 screw (A").
7) Remove the ADF Relay Board.

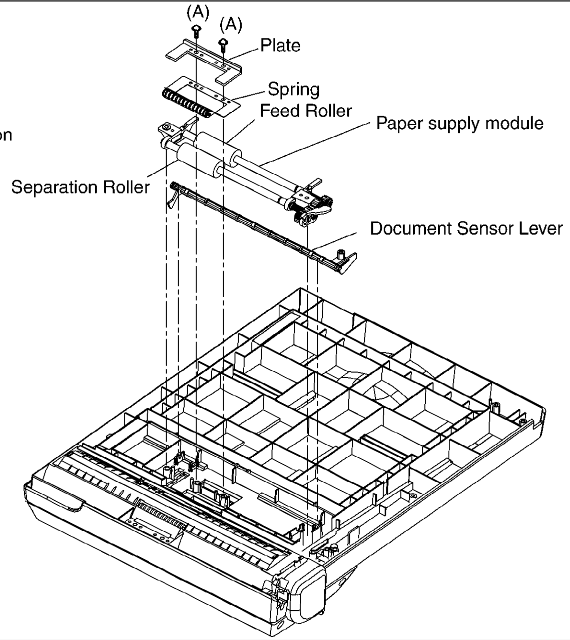

(A)
Gear Cover
(A')
(A)
(A')
Feed Module Cover
Connector-(1),(2),(3)
(A")
ADF Relay Board

## 5.22. HOW TO REMOVE THE FEED ROLLER AND ADF SEPARATION ROLLER

**PROCEDURE: A-1--> C-1--> C-3--> C-4**

**REF.NO.C-4**

1) Remove the 2 screws (A).
2) Remove the Plate and Spring.
3) Lift up the Paper Supply Module.
4) Remove the Feed Roller and Separation Roller.
5) Remove the Document Sensor Lever.

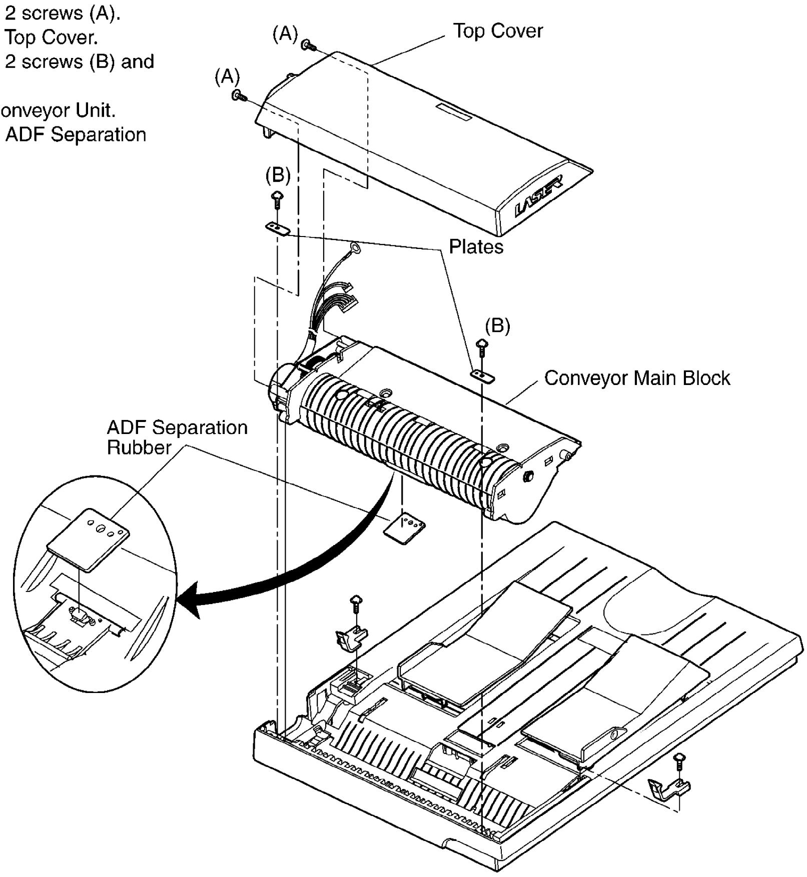

(A)
(A)
Plate
Spring
Feed Roller
Paper supply module
Separation Roller
Document Sensor Lever

## 5.23. HOW TO REMOVE THE TOP COVER AND CONVEYOR BLOCK

**PROCEDURE: A-1--> C-5**

**REF.NO.C-5**

1) Remove the 2 screws (A).
2) Remove the Top Cover.
3) Remove the 2 screws (B) and 2 Plates.
4) Lift up the Conveyor Unit.
5) Remove the ADF Separation Rubber.

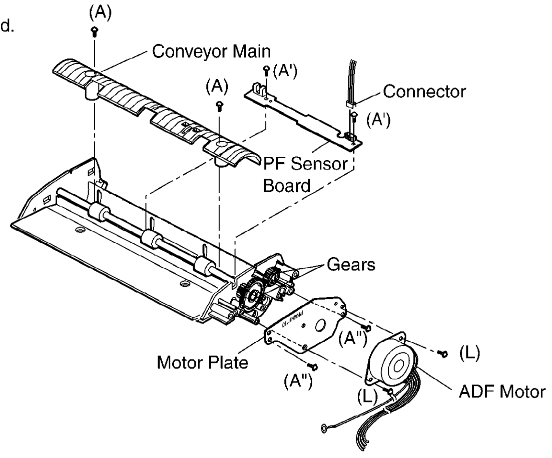

(A)
Top Cover
(A)
(B)
Plates
(B)
Conveyor Main Block
ADF Separation Rubber

## 5.24. HOW TO REMOVE THE ADF MOTOR AND PF SENSOR BOARD

**PROCEDURE: A-1--> C-5--> C-6**

**REF.NO.C-6**

1) Remove the 2 screws (A).
2) Remove the Conveyor Main.
3) Remove the Connector on the PF Sensor Board.
4) Remove the 2 Screws (A')
5) Remove thehe PF Sensor Board.
6) Remove the 2 Screws(L).
7) Remove the ADF Motor.
8) Remove the 2 screws (A").
9) Remove the Motor Plate.
10) Remove the gears.

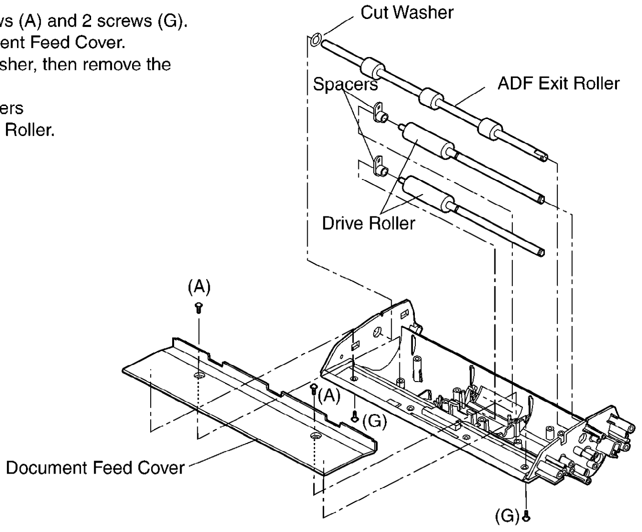

(A)
Conveyor Main
(A')
(A)
Connector
(A')
PF Sensor Board
Gears
(A")
(L)
Motor Plate
(A")
(L)
ADF Motor

# 5.25. HOW TO REMOVE THE ADF EXIT ROLLER AND DRIVE ROLLER

**PROCEDURE: A-1--> C-5--> C-6--> C-7**

**REF.NO.C-7**

1) Remove the 2 screws (A) and 2 screws (G).
2) Remove the Document Feed Cover.
3) Remove the Cut washer, then remove the ADF Exit Roller.
5) Remove the 2 Spacers
6) Remove the 2 Drive Roller.

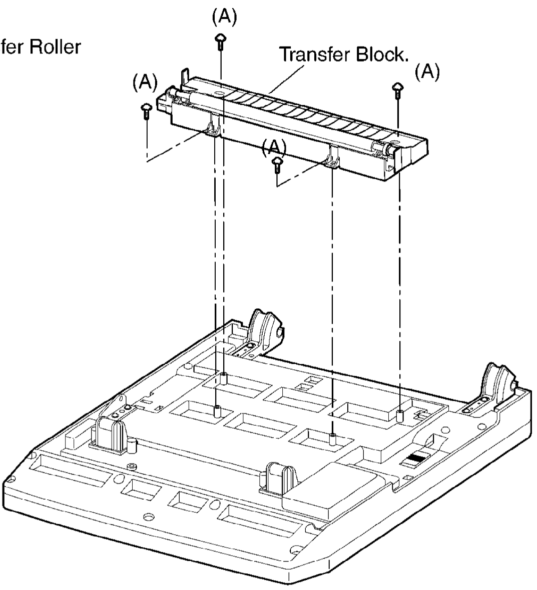

Cut Washer
Spacers
ADF Exit Roller
Drive Roller
(A)
(A)
(G)
Document Feed Cover
(G)

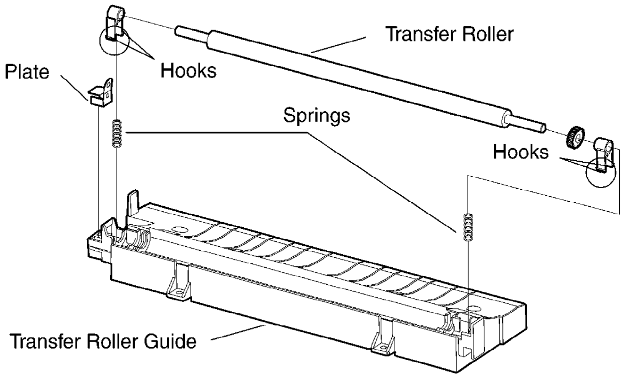
# 5.26. HOW TO REMOVE THE TRANSFER ROLLER

**PROCEDURE: A-1--> D-2--> D-1**

**REF.NO.D-1**

1) Remove the 4 screws (A).
2) Remove Transfer Block.
3) Release the Hooks from the Transfer Roller Guide.
4) Lift up the Transfer Roller.
5) Remove 2 Springs.
6) Remove the Plate.


(A)
Transfer Block.
(A)
(A)
(A)

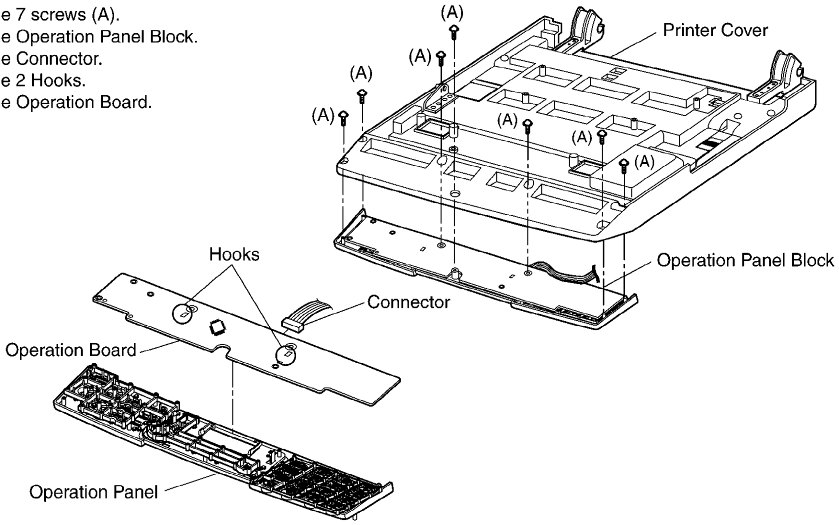

Transfer Roller
Plate
Hooks
Springs
Hooks
Transfer Roller Guide

## 5.27. HOW TO REMOVE THE OPERATION BOARD

**PROCEDURE: A-1--> A-2--> D-1--> D-2**

**REF.NO.D-2**

1) Remove the 7 screws (A).
2) Remove the Operation Panel Block.
3) Remove the Connector.
4) Release the 2 Hooks.
5) Remove the Operation Board.

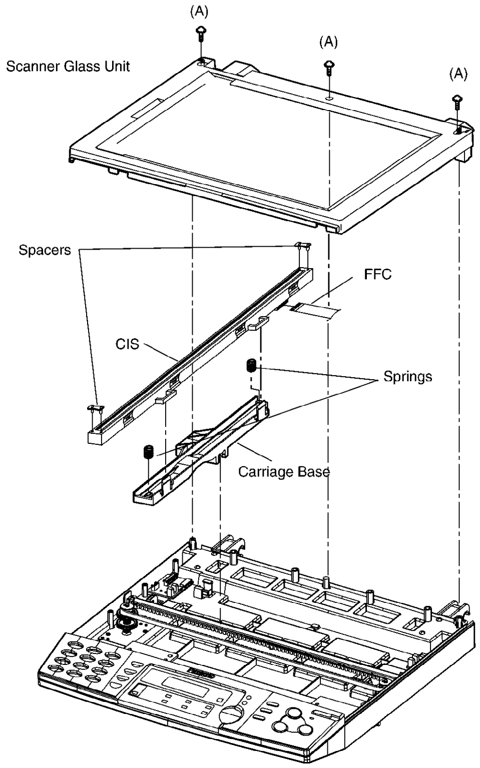

(A)
(A)
(A)
(A)
(A)
(A)
(A)
Printer Cover
Hooks
Connector
Operation Panel Block
Operation Board
Operation Panel

## 5.28. HOW TO REMOVE THE SCANNER GLASS UNIT AND CIS

**PROCEDURE: A-1--> A-2--> D-1--> D-3**

**REF.NO.D-3**

1) Remove 3 screws (A)
2) Lift up the Scanner Glass Unit.
3) Remove the 2 Spacers.
*** Take care not to lose the spacers.**
4) Remove the FFC.
5) Lift up the CIS from the Carriage Base.
*** Take care not to touch the top of the CIS.**
6) Remove the Springs.
7) Remove the Carriage Base.

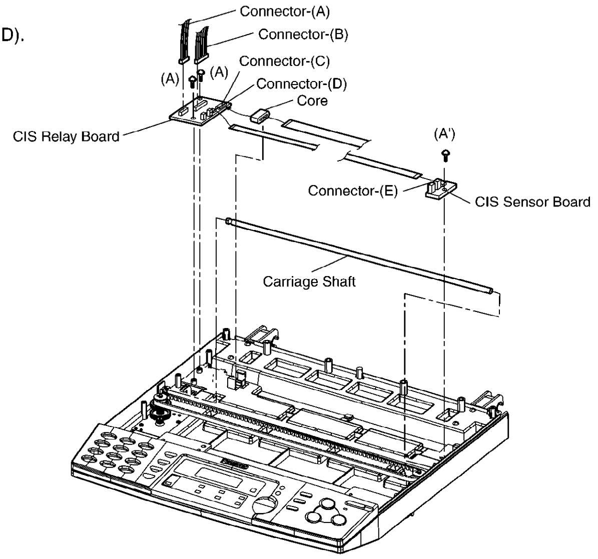

(A)
(A)
Scanner Glass Unit
(A)
Spacers
FFC
CIS
Springs
Carriage Base

## 5.29. HOW TO REMOVE THE CIS RELAY BOARD AND CIS SENSOR BOARD

**PROCEDURE: A-1--> A-2--> D-3--> D-4**

**REF.NO.D-4**

1) Rempve the Connectors-(A),(B),(C) and (D).
2) Remove the 2 screws-(A).
3) Remove the CIS Relay Board.
4) Remove the Connector-(E).
5) Remove the screw -(A').
6) Remove the CIS Sensor Board.
7) Remove the Carriage Shaft.

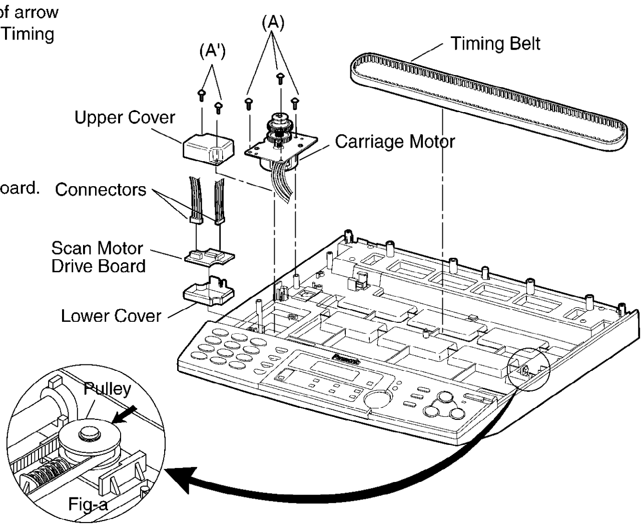

Connector-(A)
Connector-(B)
Connector-(C)
Connector-(D)
Core
(A)
(A)
CIS Relay Board
(A')
Connector-(E)
CIS Sensor Board
Carriage Shaft

## 5.30. HOW TO REMOVE THE CARRIAGE MOTOR AND SCAN MOTOR DRIVE BOARD

**PROCEDURE: A-1--> A-2--> D-3--> D-4--> D-5**

**REF.NO.D-5**

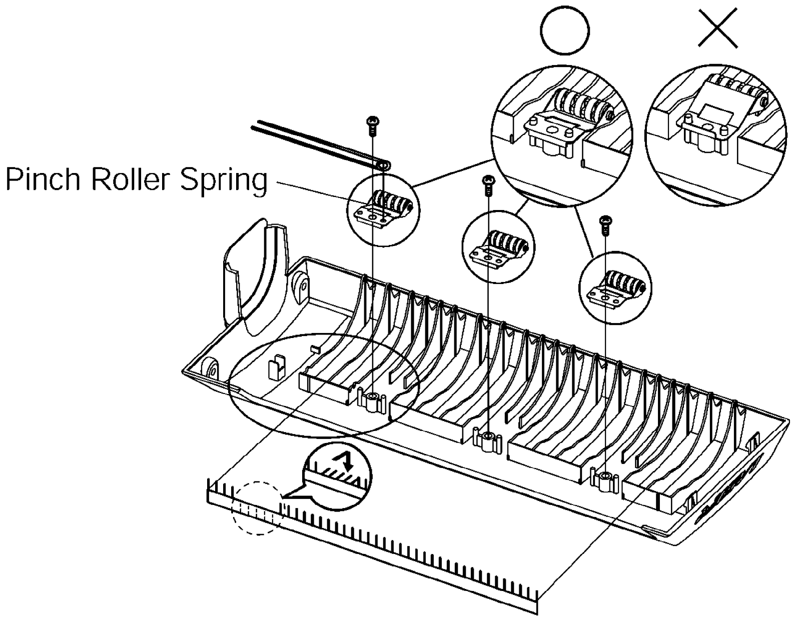
1) Push the Pulley in the direction of arrow as shown in Fig-a to remove the Timing Belt.
2) Remove the 3 screws (A).
3) Remove the Carriage Motor.
4) Remove the 2 screws (A').
5) Remove the Upper Cover.
6) Remove the 2 Connectors.
7) Remove the Scan Motor Drive Board.
8) Remove the Lower Cover.


(A)
(A')
Timing Belt
Upper Cover
Carriage Motor
Connectors
Scan Motor
Drive Board
Lower Cover
Pulley
Fig-a

## 5.31. NOTES FOR ASSEMBLING

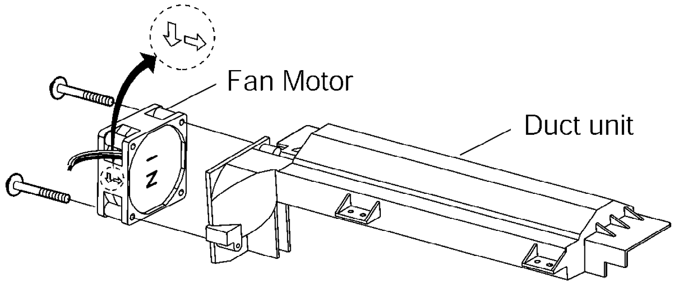
### 5.31.1. PINCH ROLLER SPRING

Be sure the direction of the installing the Pinch Roller Springs.

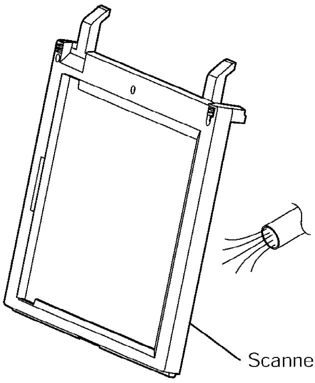

○
×
Pinch Roller Spring

### 5.31.2. FAN MOTOR

When attaching the Fan Motor to the Duct Unit,be sure the Direction of the Motor.


Fan Motor
Duct unit

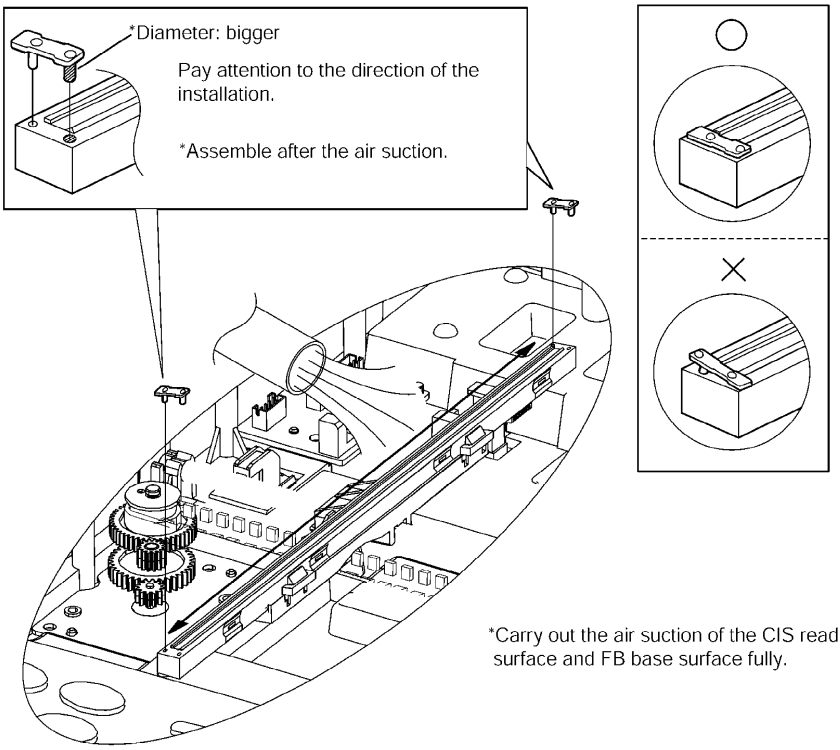
### 5.31.3. SCANNER GLASS ASS’Y



Assemble after air suction .

Trash,dust,dirt fingerprint,and so on must not adhere to the back of glass. (The inside of the set.)

Scanner Glass Ass'y



*Diameter: bigger

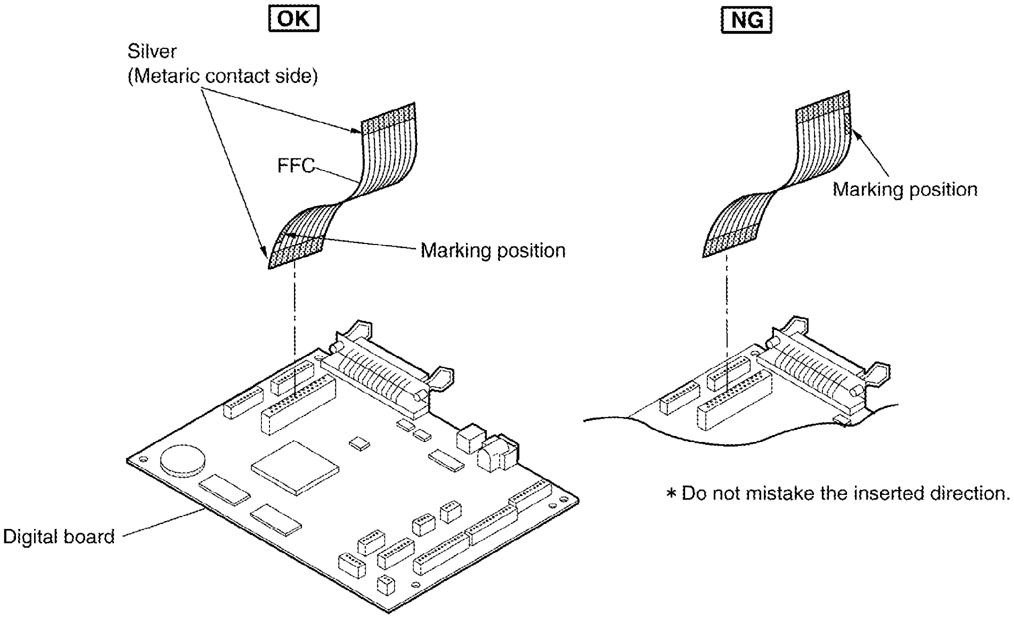
Pay attention to the direction of the installation.

*Assemble after the air suction.

*Carry out the air suction of the CIS reading surface and FB base surface fully.

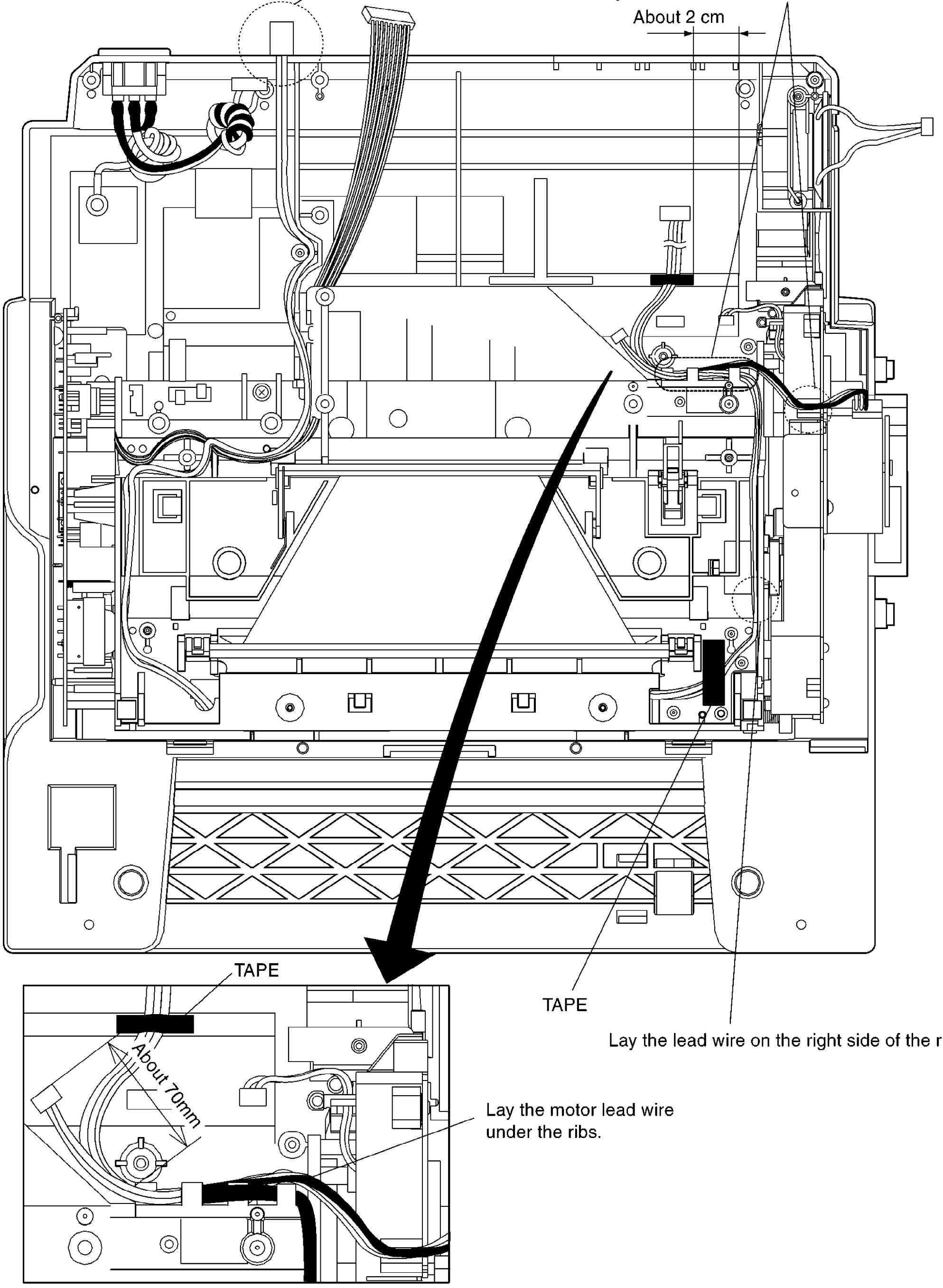
## 5.31.4. FCC (DIGITAL BOARD)

Install the FFC as following pictures,when you connect the FFC to the digital board.


OK
NG
Silver
(Metaric contact side)
FFC
Marking position
Marking position
Digital board

* Do not mistake the inserted direction.

## 5.32. INSTALLATION POSITION OF THE LEAD

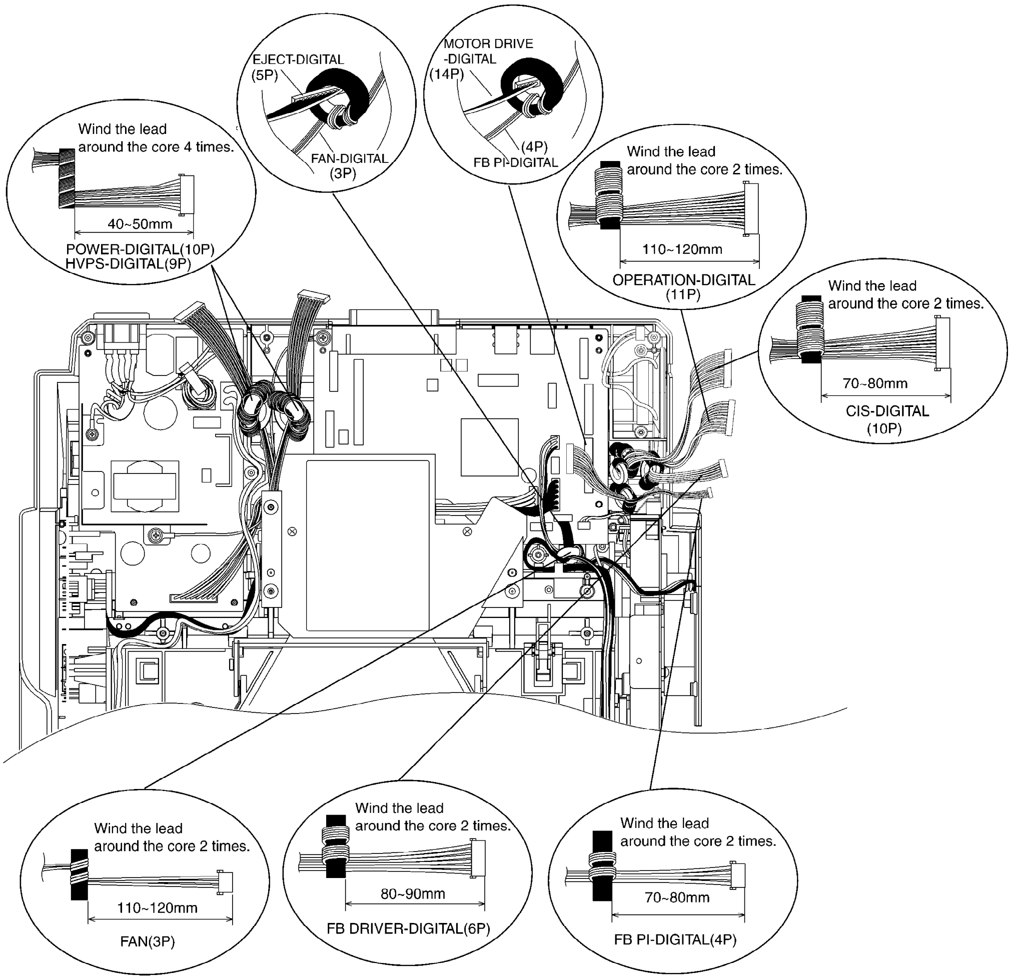

About 2 cm
TAPE
About 70mm
TAPE

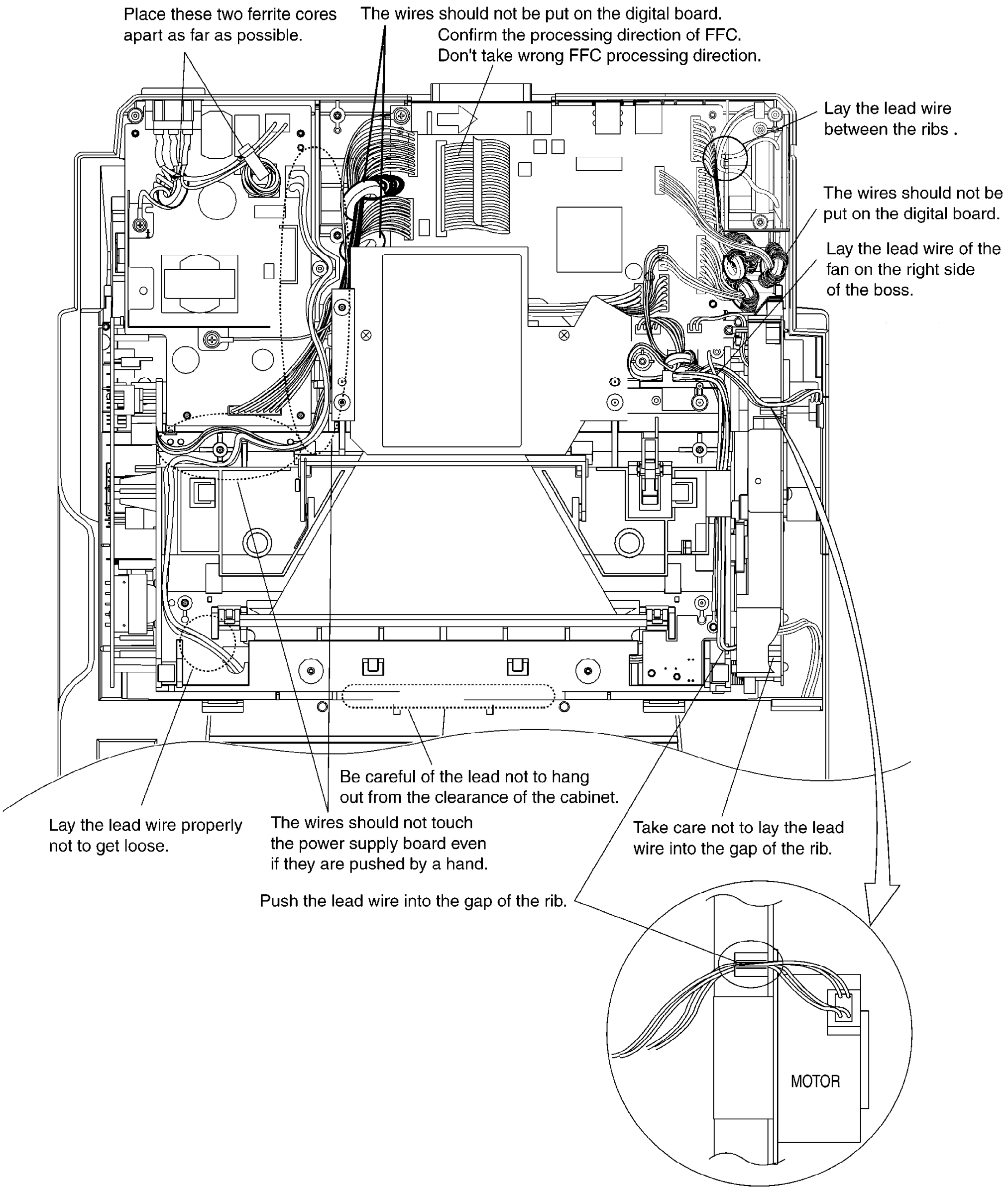
Pull the fuser lead connector up to this position.

Lay the lead wire between the ribs.

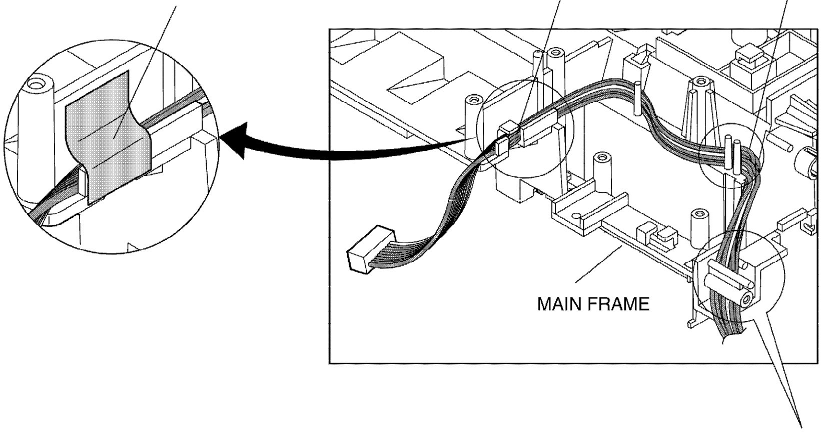
Lay the lead wire on the right side of the rib.

Lay the motor lead wire under the ribs.

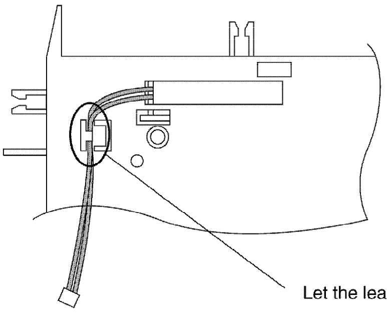

EJECT-DIGITAL
(5P)
FAN-DIGITAL
(3P)
MOTOR DRIVE
-DIGITAL
(14P)
(4P)
FB PI-DIGITAL
Wind the lead
around the core 4 times.
40~50mm
POWER-DIGITAL(10P)
HVPS-DIGITAL(9P)
Wind the lead
around the core 2 times.
110~120mm
OPERATION-DIGITAL
(11P)
Wind the lead
around the core 2 times.
70~80mm
CIS-DIGITAL
(10P)
Wind the lead
around the core 2 times.
110~120mm
FAN(3P)
Wind the lead
around the core 2 times.
80~90mm
FB DRIVER-DIGITAL(6P)
Wind the lead
around the core 2 times.
70~80mm
FB PI-DIGITAL(4P)


Place these two ferrite cores apart as far as possible.
The wires should not be put on the digital board.
Confirm the processing direction of FFC.
Don't take wrong FFC processing direction.
Lay the lead wire between the ribs .
The wires should not be put on the digital board.
Lay the lead wire of the fan on the right side of the boss.
Be careful of the lead not to hang out from the clearance of the cabinet.
Lay the lead wire properly not to get loose.
The wires should not touch the power supply board even if they are pushed by a hand.
Take care not to lay the lead wire into the gap of the rib.
Push the lead wire into the gap of the rib.
MOTOR

## Placing the lead wire of HIGH VOLTAGE POWER SUPPLY BOARD - DIGITAL BOARD

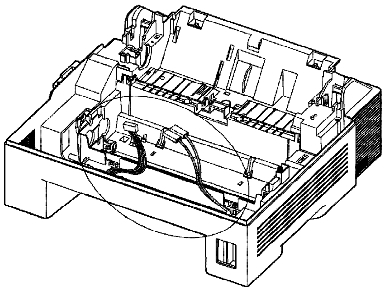

Paste the tape after dressing the lead wire.
Let the lead wire in the rib.
Lay the lead wire behind the boss.
MAIN FRAME
Lay the lead wire between the boss and rib.

## Placing the lead wire of the solenoid.

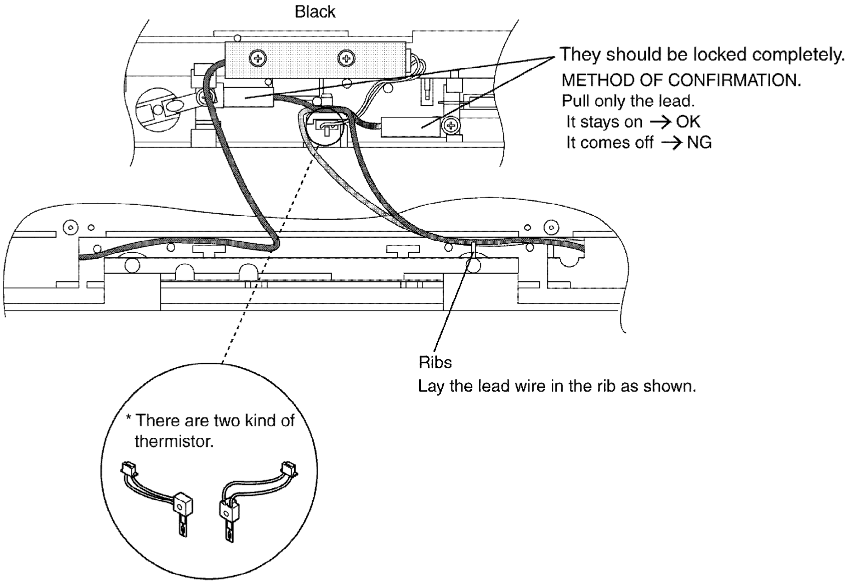

Let the lead wire in the rib as shown.

**Placing the lead wire of FUSSER UNIT.**

Place the lead wires as figure below



After connecting Fusser lead wire, pass the brown wire first
and the black wire next in between the rib and the wall.



They should be locked completely.
METHOD OF CONFIRMATION.
Pull only the lead.
It stays on → OK
It comes off → NG

Lay the lead wire in the rib as shown.

* There are two kind of thermistor.

# 6. TROUBLESHOOTING GUIDE

## 6.1. USER RECOVERABLE ERRORS

**If the unit detects a problem, one or more of the following messages will appear on the display. The explanations given in the [ ] are for servicemen only.**

| DISPLAY MESSAGE | CAUSE AND REMEDY |
|---|---|
| CALL SERVICE 1 | -Polygon motor error.<br>Refer to CALL SERVICE TROUBLESHOOTING GUIDE (). |
| CALL SERVICE 2 | -Laser beam error. Replace LSU unit.<br>Refer to CALL SERVICE TROUBLESHOOTING GUIDE (). |
| CALL SERVICE 3 | -Fuser unit cannot heat up. Replace fuser unit.<br>Refer to CALL SERVICE TROUBLESHOOTING GUIDE (). |
| CALL SERVICE 4 | -Fan motor error. Replace fan motor.<br>Refer to CALL SERVICE TROUBLESHOOTING GUIDE (). |
| CARRIAGE ERROR<br>↕<br>RELEASE SHIPPING LOCK | -The shipping lock is locked. Unlock the shipping lock. If the display messages still remain after unlo<br>is something wrong with the carriage sensor. Contact our service personnel. |
| CHANGE DRUM<br>↕<br>CHANGE SUPPLIES | -There is something wrong with the drum unit. Replace the drum unit and the toner cartridge. |
| CHECK ADF CABLE | -The ADF cable is not connected correctly. Check the connection. |
| CHECK DOCUMENT | -The document is not fed into the unit properly. Reinsert the document. If misfeeding occurs frequent<br>document feeder rollers and try again. |
| CHECK DRUM | -The drum unit is not inserted properly. Reinsert it correctly.<br>-The installed drum is worn out. Replace the drum unit with a new one. |
| CHECK MEMORY | -The memory (telephone numbers, parameters, etc.) has been erased. Re-program.<br>[The backup lithium battery on the top of the digital board may be low or dead, so check it.] |
| CLOSE ADF COVER | - The printer cover (ADF cover) is open. Close it. |
| COVER OPEN | -The printer cover is open. Close it. |
| DATA IN MEMORY | -You tried to change the cable type setting (feature #15), while the fax machine has a document in me<br>sending faxes, print out the document in memory or cancel the delayed transmission (feature #25) an |
| DIRECTORY FULL | -There is no space to store new entries in navigator directory. Erase unnecessary entries. |
| FAILED PICK UP | -Recording paper was not fed into the unit properly. Reinsert the recording paper. |
| FAX IN MEMORY | -The unit has a document in memory. See the other displayed message instructions to print out the d |
| FAX MEMORY FULL | -Memory is full of received documents due to lack of recording paper or a recording paper jam, etc. In<br>or clear the jammed paper.<br>-When performing memory transmission, the document being stored exceeds the memory capacity of<br>Transmit the entire document manually. |
| LINE IN USE | -You cannot change the cable the type setting (feature #15) while using the handset or the monitor. H<br>try again. |
| MEMORY FULL | -When making a copy, the document being stored exceeds the memory capacity of the unit. Press [S<br>clear the message. Divide the document into sections. |
| MODEM ERROR | -There is something wrong with the modem circuit. |
| NO FAX REPLY | -The other party´s fax machine is busy or has run out of recording paper. Try again. |

| DISPLAY MESSAGE | CAUSE AND REMEDY |
|---|---|
| OUT OF PAPER | -Recording paper is not installed or the unit has run out of paper. Install paper.<br>-Recording paper is not fed into the unit properly. Reinstall paper. |
| PAPER JAMMED | -A recording paper jam occurred. Clear the jammed paper.<br>[If the printout jams, please refer to RECORDING PAPER JAMS ().] |
| PC FAIL OR BUSY | -The cable or the PC power cord is not connected correctly. Check the connections.<br>-The software is not running on the PC. Restart the software and try again. |
| PLEASE WAIT | -The unit is warming up. Wait for a while. |
| REDIAL TIME OUT | -The other party´s fax machine is busy or has run out of recording paper. Try again. |
| REMOVE DOCUMENT | -The document is jammed. Remove the jammed document.<br>-Attempted to transmit a document longer than 600 mm (23 5/8”). Press the [STOP] to remove the do Divide the document into two or more sheets and try again.<br>-[Alternately, turn off service code #559 to enable sending of documents longer than 600 mm] (Refer t DOCUMENT JAMS ().) |
| TONER EMPTY<br>↕<br>CHANGE SUPPLIES | -The toner cartridge is empty. Replace the toner cartridge. |
| TONER LOW<br>↕<br>CHANGE SUPPLIES | -The remaining toner is low. Replace the toner cartridge and as soon as possible. We recommend you drum unit every third time you replace the toner cartridge. To check the drum life and quality, please p printer test list. (Refer to TEST FUNCTIONS ().) |
| TRANSMIT ERROR | -A transmission error occurred. Try again. |
| WRONG PAPER | -The unit print on paper which is shorter then letter size paper.<br>To prevent the drum unit becoming dirty, use A4 or letter size paper. |

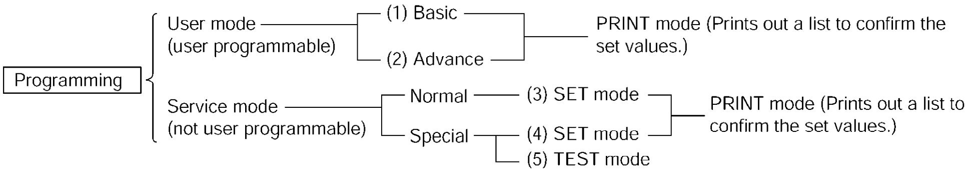
## 6.2. PROGRAMMING AND LISTS

The programming functions are used to program the various features and functions of the machine, and to test the machine.
This facilitates communication between the user and the service man while programming the unit.

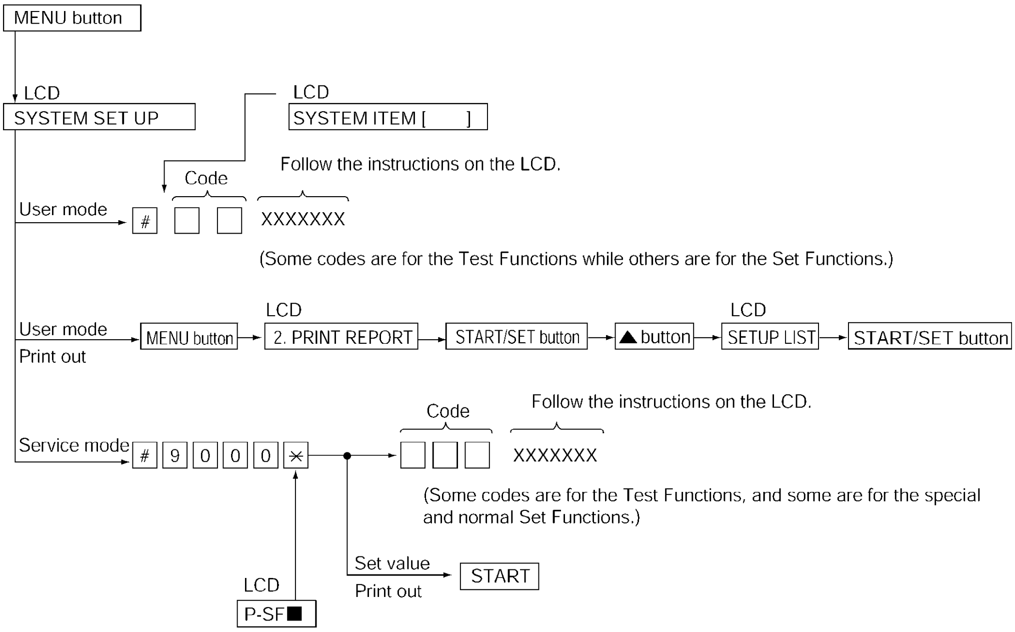
### 6.2.1. OPERATION

There are 2 basic categories of programming functions, the User Mode and the Service Mode. The Service Mode is further broken down into the normal and special programs. The normal programs are those listed in the Operating Instructions and are available to the user. The special programs are only those listed here and not displayed to the user. In both the User and Service Modes, there are Set Functions and Test Functions. The Set Functions are used to program various features and functions, and the Test Functions are used to test the various functions. The Set Functions are accessed by entering their code, changing the appropriate value, then pressing the SET key. The Test Functions are accessed by entering their code and pressing the key listed on the menu. While programming, to cancel any entry, press the STOP key.

### 6.2.2. OPERATION FLOW


Programming
User mode
(user programmable)
(1) Basic
(2) Advance
PRINT mode (Prints out a list to confirm the set values.)
Service mode
(not user programmable)
Normal
Special
(3) SET mode
(4) SET mode
(5) TEST mode
PRINT mode (Prints out a list to confirm the set values.)

Operating Procedure


MENU button
LCD
SYSTEM SET UP
LCD
SYSTEM ITEM [ ]
Code
Follow the instructions on the LCD.
User mode
#
XXXXXXX
(Some codes are for the Test Functions while others are for the Set Functions.)
User mode
Print out
MENU button
LCD
2. PRINT REPORT
START/SET button
▲ button
LCD
SETUP LIST
START/SET button
Code
Follow the instructions on the LCD.
Service mode
# 9 0 0 0 ✕
XXXXXXX
(Some codes are for the Test Functions, and some are for the special and normal Set Functions.)
Set value
Print out
START
LCD
P-SF■

## 6.2.3. SERVICE FUNCTION TABLE

| Code | Function | Set Value | Effective Range | Default | Remarks |
|---|---|---|---|---|---|
| 501 | Pause time set | X 100 msec | 001~600 | 030 | ---------- |
| 502 | Flash time | X 10 ms | 01~99 | 10 | ---------- |
| 503 | Dial speed select | 1:10pps<br>2:20pps | 1, 2 | 1 | ---------- |
| 520 | CED frequency select | 1:2100 Hz<br>2:1100 Hz | 1, 2 | 1 | See Symptom/Countermeasu for long distance and internat calls in. |
| 521 | International mode select | 1:ON 2: OFF | 1, 2 | 1 | See Symptom/Countermeasu for long distance and internat calls in. |
| 522 | Auto standby select | 1:ON 2: OFF | 1, 2 | 1 | The resolution reverts to the when transmission is comple |
| 523 | Receive equalizer select | 1: 0 km<br>2: 1.8 km<br>3: 3.6 km<br>4: 7.2 km | 1~4 | 1 | Set RX equalizer to automatic |

| Code | Function | Set Value | Effective Range | Default | Remarks |
|---|---|---|---|---|---|
| 524 | Transmission equalizer select | 1: 0 km<br>2: 1.8 km<br>3: 3.6 km<br>4: 7.2 km | 1~4 | 1 | |
| 527 | V8 Mode | 1: DISABLE 2 :ENABLE | 1,2 | 2 | ---------- |
| 529 | Memory clear for Call Service | | | | "START" input |
| 550 | Memory clear | | | | See TEST FUNCTIONS(). |
| 551 | ROM check | | | | See TEST FUNCTIONS(). |
| 552 | DTMF signal tone test | 1:ON 2: OFF | 1, 2 | 2 | See TEST FUNCTIONS(). |
| 553 | Monitor on FAX communication select | 1:OFF<br>2:PHASE B<br>3:ALL | 1~3 | 1 | Sets whether to monitor the li signal with the unit's speaker FAX communication or not. |
| 554 | Modem test | | | | See TEST FUNCTIONS(). |
| 556 | Motor test | | | 0 | See TEST FUNCTIONS(). |
| 557 | LED test | | | | See TEST FUNCTIONS(). |
| 558 | LCD test | | | | See TEST FUNCTIONS(). |
| 561 | KEY test | | | | See TEST FUNCTIONS(). |
| 570 | BREAK % select | 1:61% 2: 67% | 1, 2 | 2 | Sets the % break of pulse dial according PBX. |
| 573 | Remote turn-on ring number set | X number of rings | 01~99 | 10 | Sets the number of rings befo unit starts to receive a docum the TEL mode. |
| 590 | FAX auto redial time set | X number of times | 00~99 | 02 | Selects the number of redial t during FAX communication (r including the first dial). |
| 591 | FAX auto redial time disconnection time set | X second | 001~999 | 065 | Sets the FAX redial interval du FAX communication. |
| 592 | CNG transmit select | 1:OFF<br>2:ALL<br>3:AUTO | 1~3 | 2 | Lets you select the CNG outp during FAX transmission. ALI is output at phase A. AUTO: C output only when automatic d is performed. OFF: CNG is no at phase A. Refer to SOMETIM THERE IS A TRANSMIT PROE |
| 593 | Time between CED and 300bps | 1:75 msec<br>2:500 msec<br>3:1 sec | 1~3 | 1 | See Symptom/Countermeasu for long distance and internat calls in. Refer to RECEIVE PR (). |

| Code | Function | Set Value | Effective Range | Default | Remarks |
|---|---|---|---|---|---|
| 594 | Overseas DIS detection select | 1:detects at the 1st time<br>2:detects at the 2nd time | 1, 2 | 1 | See Symptom/Countermeasu for long distance and internat calls in. Refer to SOMETIME T IS A TRANSMIT PROBLEM(). |
| 595 | Receive error limit value set | 1: 5%<br>2: 10%<br>3: 15%<br>4: 20% | 1~4 | 2 | If the number of errors during transmission exceeds this val sending side terminates the c |
| 596 | Transmit level set | X dBm | - 15~00 | 11 | Selects the FAX transmission Refer to SOMETIME THERE IS TRANSMIT PROBLEM ()and RECEIVE PROBLEM (). |
| 598 | Receiving sensitivity | 01= -01 dBm | 20~48 | 43 | Used when there is an error p |
| 599 | ECM frame size | 1:256 2:64 | 1, 2 | 1 | ---------- |
| 651 | Write system program into the Flash Rom with a parallel cable. | | | | ---------- |
| 655 | Call service 3 detection number | | | | See CALL SERVICE TROUBLESHOOTING GUIDE |
| 710 | Memory clear except History data | | | | To reset the value to the defa except History data. Please re power supply after clearing a memory. |

| Code | Function | Set Value | Effective Range | Default | Remarks |
|---|---|---|---|---|---|
| **717** | **Transmit speed selection** | **1: 33600BPS<br>2: 31200BPS<br>3: 28800BPS<br>4: 26400BPS<br>5: 24000BPS<br>6: 21600BPS<br>7: 19200BPS<br>8: 16800BPS<br>9: 14400BPS<br>10: 12000BPS<br>11: 9600BPS<br>12: 7200BPS<br>13: 4800BPS<br>14: 2400BPS** | **1~14** | **1** | **Adjusts the speed to start trai during FAX transmission. Ref SOMETIME THERE IS A TRAN PROBLEM ()** |

| Code | Function | Set Value | Effective Range | Default | Remarks |
|---|---|---|---|---|---|
| 718 | Receive speed selection | 1: 33600BPS<br>2: 31200BPS<br>3: 28800BPS<br>4: 26400BPS<br>5: 24000BPS<br>6: 21600BPS<br>7: 19200BPS<br>8: 16800BPS<br>9: 14400BPS<br>10: 12000BPS<br>11: 9600BPS<br>12: 7200BPS<br>13: 4800BPS<br>14: 2400BPS | 1~14 | 1 | Adjusts the speed to start trai during FAX reception. Refer t RECEIVE PROBLEM() |
| 771 | T1 timer | Australia<br>1: 35 sec<br>2: 60 sec<br>New zealand<br>1: 25 sec<br>2: 60 sec | 1, 2 | 1 | Sets a higher value when the response from the other party more time during FAX transm |
| 774 | T4 timer | × 100 msec | 00~99 | 00 | Use this function when delay in the line and communicatio (ex. Mobile comm) does not w well. |
| 815 | Sensor check | | | | See TEST FUNCTIONS (). |
| 852 | Print test pattern | | | | See TEST FUNCTIONS (). |
| 853 | Top margin | | 1~5 | 3 | ---------- |
| 854 | Left margin | | 1~7 | 4 | See LSU (Laser Scanning Uni SECTION (). |

| Code | Function | Set Value | Effective Range | Default | Remarks |
|---|---|---|---|---|---|
| 880 | History list | | | | See HISTORY (Example of a p<br>out list) (). |
| 881 | Journal 2 list | | | | See PRINTOUT EXAMPLE (). |
| 882 | Journal 3 list | | | | See PRINTOUT EXAMPLE (). |

## 6.3. TEST FUNCTIONS

**The codes listed below can be used to perform simple checks of some of the unit’s functions. When complaints are received from customers, they provide an effective tool for identifying the locations and causes of malfunctions.**

| Test Mode | Type of Mode | Code<br>Operation after code input | Function |
|---|---|---|---|
| MOTOR TEST | Service Mode | “5” “5” “6”<br>START | 0: Recording paper feed<br>1: Auto Document feed (STANDARD)<br>2: Auto Document feed (FINE/SUPER FINE)<br>4: Carriage (STANDARD)<br>5: Carriage (FINE/SUPER FINE) |
| MODEM TEST | Service Mode | “5” “5” “4”<br>START | Telephone line circuit is connected automatically, the following signals on the circuit line.<br>1) OFF 2) V21 ter 300bps 3) V27 ter 2400bps 4) V2 4800bps<br>5) V29 7200 6)V29 9600bps 7) V17 7200bps 8) V17<br>9) V17 12000bps 10) V17 14400bps 11) V34 2400b 4800bps<br>13)V34 7200bps 14)V24 9600bps 15) V34 12000bp 14400bps<br>17)V34 16800bps 18)V34 19200bps 19) V34 21600b V34 24000bps<br>21)V34 26400bps 22)V34 28800bps 23) V34 31200b V34 33600bps<br>25)1100Hz 22)2100Hz |
| ROM CHECK | Service Mode | “5” “5” “1”<br>START | Indicates the version and checks the sum of the |
| LCD CHECK | Service Mode | “5” “5” “8”<br>START | Checks the LCD indication.<br>Illuminates all the dots to check if they are norma |
| DTMF SINGLE TEST | Service Mode | “5” “5” “2”<br>1....ON<br>2....OFF | Outputs the DTMF as single tones. Used to check frequencies of the individual DTMF tones. Refer t SINGLE TONE TRANSMIT SELECTION (). |
| LED CHECK | Service Mode | “5” “5” “7”<br>START | All LEDs above the operation panel board flash o or are illuminated. |

| Test Mode | Type of Mode | Code | Function |
|---|---|---|---|
| | | Operation after code input | |
| KEY CHECK | Service Mode | "5" "6" "1" | Checks the button operation.<br>Indicates the button code on the LCD while the bu |
| | | START (any key) | pressed. Refer to BUTTON CODE TABLE (). |
| MEMORY CLEAR | Service Mode | "5" "5" "0" | To reset the value to the default one, except the to |
| | | START | (#853), left margin (#854), time / day (#001), logo (<br>no. (#003), History and Directory data.<br>Please restart a power supply after clearing a me |
| High Voltage Power Supply Board CHECK | Service Mode | "6" "2" "8" | Refer to HIGH VOLTAGE VALUE CHECK POINT () |
| | | START | |

| Test Mode | Type of Mode | Code<br>Operation after code input | Function |
|---|---|---|---|
| SENSOR CHECK | Service Mode | “8” “1” “5”<br>START | First of all, press the copy button, and confirm th ON/OFF.<br>For each sensor’s operation, refer to SENSORS A SWITCHES SECTION (). <br>[D S C P R E D T * 3F * A F H B ] : LCD DISPLAY<br><br>D: Document sensor<br>:When a document is insert.<br><br>S: Scanner read Pos.<br>:When the edge of the document is detected.<br><br>C: Cover of Printer<br>:When the top cover is open.<br><br>P: Paper exist<br>:When recording paper exists.<br><br>R: Pick up paper<br>:When the edge of the recording paper is detecte<br><br>E: Exit sensor on<br>:When exist sensor is on.<br><br>D: Developer exist<br><br>T: Toner exist<br><br>*: None |

| | | | |
|---|---|---|---|
| | | | *: None<br>3F: Temperature of fuser unit (2 digits)<br>:Refer to HEAT LAMP CONTROL CIRCUIT ().<br>*: None<br>A: ADF Cover Open<br>:When the ADF Cover is open.<br>F: Document Cover Open<br>:When the Document Cover is open.<br>H: ADF Home Sensor<br>:When the ADF Home Sensor is on.<br>B: FB Home Sensor<br>:When the FB Home Sensor is on. |

| Test Mode | Type of Mode | Code | Function |
|---|---|---|---|
| | | Operation after code input | |
| PRINT TEST PATTERN | Service Mode | “8” “5” “2” | 1. Press “852” then the SET key in the service mo<br>2. As “PATNO =” is displayed on the LCD, enter t<br>pattern No. and press the SET key.<br>3. When “No. = “is displayed on the LCD, enter th<br>number and press the SET key. (Press “00” for th<br>printing.)<br>4. “MODE” is displayed on the LCD. Press “0” to<br>printing or press “1” to go to the next screen.<br>5. When “1” is pressed at MODE, “INTVL = “is dis<br>the LCD. Enter the printing interval (00~99 sec).<br>6. The printing repeats the designated number of<br>the programmed printing intervals. |
| | | START | |

**Note:**

**The numbers in the boxes (XXX) indicate the keys to be input for the various test modes.**

### 6.3.1. DTMF SINGLE TONE TRANSMIT SELECTION

When set to ON (=1), the 12 keys and transmission frequencies are as shown.

| key | High Frequency (Hz) | Key | Low Frequency (Hz) |
|---|---|---|---|
| "1" | 697 | "5" | 1209 |
| "2" | 770 | "6" | 1336 |
| "3" | 852 | "7" | 1477 |
| "4" | 941 | "8" | 1633 |

When set to OFF (=2), the 12 keys and transmission frequencies are as shown.

| High (Hz)<br>Low (Hz) | 1209 | 1336 | 1477 |
|---|---|---|---|
| 697 | "1" | "2" | "3" |
| 770 | "4" | "5" | "6" |
| 852 | "7" | "8" | "9" |
| 941 | * | "0" | "#" |

**Note:**

**After performing this check, do not forget to turn the setting off. otherwise, dialing in DTMF signal will not work.**

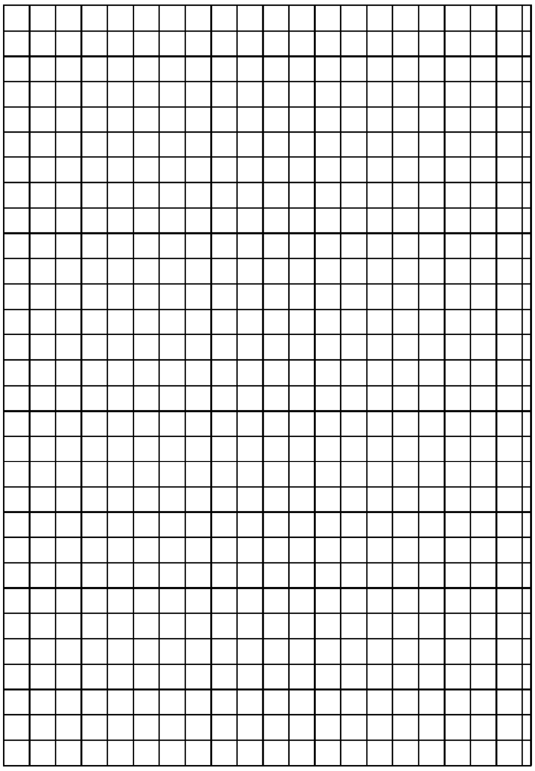
### 6.3.2. BUTTON CODE TABLE

| Code | Button Name | Code | Button Name | Code | Button Name |
|---|---|---|---|---|---|
| 5D | RESOLUTION | 35 | 5 | 46 | NAVIGATOR - |
| 43 | START/SET | 36 | 6 | 47 | NAVIGATOR + |
| 4D | LOWER | 37 | 7 | 48 | BROADCAST 1 |
| 41 | COPY START | 38 | 8 | 49 | BROADCAST 2 |
| 54 | MONITOR | 39 | 9 | 4A | MANUAL BROAD |
| 55 | PAUSE | 30 | 0 | 4B | STATION 4 |
| 4E | AUTO ANSWER | 3A | * | 4C | STATION 5 |
| 44 | MENU | 3B | # | 65 | NAVIGATOR ▶ |
| 53 | HELP | 52 | REDIAL/PAUSE | 66 | NAVIGATOR ◀ |
| 31 | 1 | 57 | RECALL | 67 | STATION 6 |
| 32 | 2 | 5A | CALLER ID | 00 | NO INPUT |
| 33 | 3 | 58 | SCAN | — | STOP |
| 34 | 4 | 5F | COLLATE | | |

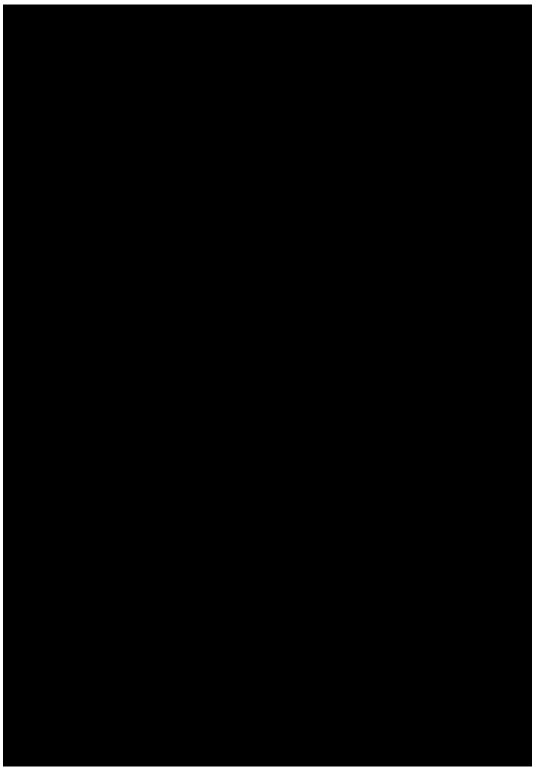
### 6.3.3. PRINT TEST PATTERN

## 1. NO. 01

**3. NO.03**



**2. NO.07**



**3. NO.03**

### 4. NO.09

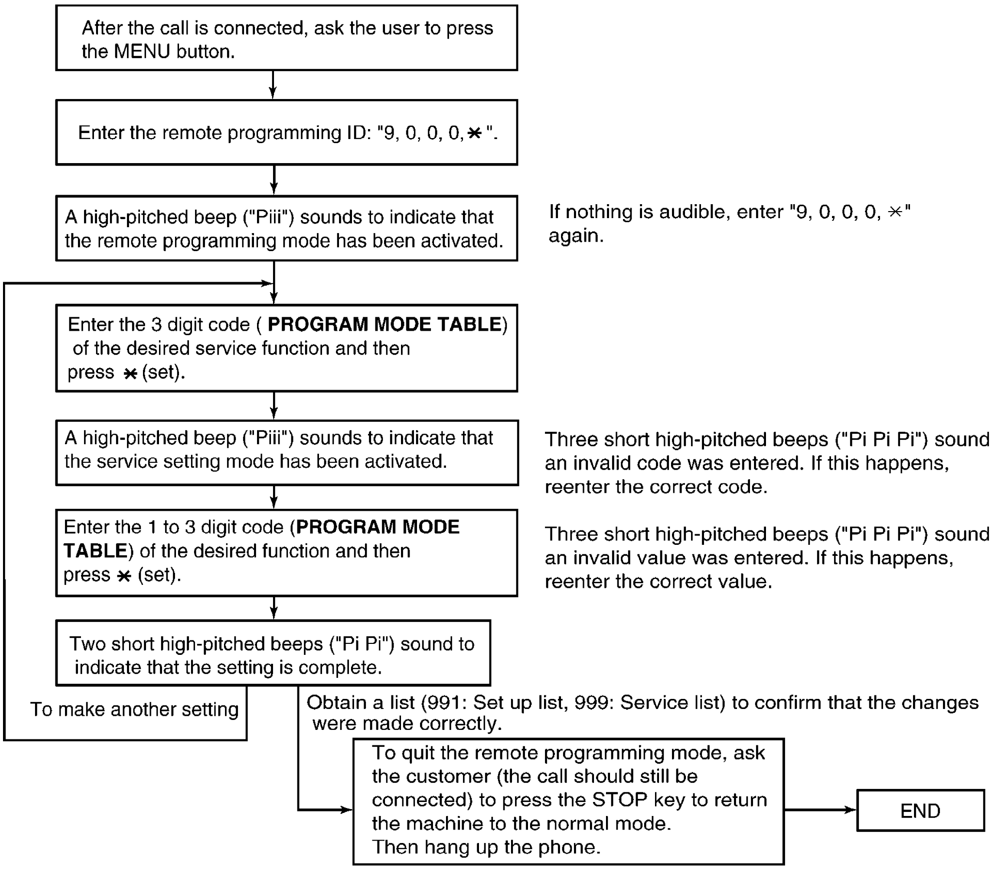
## 6.4. REMOTE PROGRAMMING

**If, after the call is connected, the customer describes the situation and it is determined that the**

**problem can be corrected by making parameter changes, this function makes it possible to change parameters such as the user code and service code from another fax (using DTMF tones). Therefore, travel to the customer's location is not required. However, it is not possible to change all the parameters remotely (PROGRAM MODE TABLE()). The function used to accomplish this is remote programming.**
**First, in order to check the current status of the service code parameter, print out the setup list (code: 991) and the service list (code: 999) from the customer's fax machine.**
**Based on this, the parameters for the desired codes can be changed.**
**The procedure for changing and listing parameters is described on ENTERING THE REMOTE PROGRAMMING MODE AND CHANGING SERVICE CODES(). Also, before exiting the remote programming mode, it is advisable to obtain a new list to confirm that the changes were made correctly.**

**Hint:**
**Since the connected telephone is in use during the remote programming mode, it may be helpful to ask the customer to switch to the speakerphone. This frees the customer from the need to remain right next to the fax while you are making parameter settings. When finished, inform the customer. Also note that in very noisy locations where the DTMF tones are not audible, the remote programming function will not work.**

## 6.4.1. ENTERING THE REMOTE PROGRAMMING MODE AND CHANGING SERVICE CODES


After the call is connected, ask the user to press the MENU button.
Enter the remote programming ID: "9, 0, 0, 0, *".
A high-pitched beep ("Piii") sounds to indicate that the remote programming mode has been activated.
If nothing is audible, enter "9, 0, 0, 0, *" again.
Enter the 3 digit code ( **PROGRAM MODE TABLE**) of the desired service function and then press * (set).
A high-pitched beep ("Piii") sounds to indicate that the service setting mode has been activated.
Three short high-pitched beeps ("Pi Pi Pi") sound if an invalid code was entered. If this happens, reenter the correct code.
Enter the 1 to 3 digit code (**PROGRAM MODE TABLE**) of the desired function and then press * (set).
Three short high-pitched beeps ("Pi Pi Pi") sound if an invalid value was entered. If this happens, reenter the correct value.
Two short high-pitched beeps ("Pi Pi") sound to indicate that the setting is complete.
To make another setting
Obtain a list (991: Set up list, 999: Service list) to confirm that the changes were made correctly.
To quit the remote programming mode, ask the customer (the call should still be connected) to press the STOP key to return the machine to the normal mode. Then hang up the phone.
END

**CROSS REFERENCE:**
PROGRAM MODE TABLE ()

## 6.4.2. PROGRAM MODE TABLE

| Code | Function | Set Value | Default | Remote Setting |
|---|---|---|---|---|
| 001 | Set date and time | mm/dd/yy hh:mm | Jan/01/2003 | NG |
| 002 | Your logo | --------- | None | NG |
| 003 | Your fax telephone number | --------- | None | NG |
| 004 | Transmission report mode | 1:Error / 2:ON / 3:OFF | ERROR | OK |
| 006 | FAX ring count | 2 to 9 rings | 2 | OK |
| 012 | Remote TAM activation | ON/ID=11 / OFF | OFF | NG |
| 013 | Dialing mode (for Australian users only) | 1:PULSE / 2:TONE | TONE | OK |
| 015 | PC INTERACE | PARALLEL / USB | PARALLEL | NG |
| 016 | Paper size | 1:LETTER / 2:A4 / 3:LEGAL | A4 | OK |
| 017 | Ringer pattern | A / B / C | A | NG |
| 022 | Auto journal print | 1:NEXT FAX / 2:ERROR / 3: OFF | ERROR | OK |
| 023 | Overseas mode | 1:ON / 2:OFF | OFF | OK |
| 025 | Delayed transmission | ON / OFF | OFF | NG |
| 026 | Auto CALLER ID list | 1:ON / 2:OFF | ON | OK |
| 031 | Distinctive ring pattern | 1:ON / 2:OFF | OFF | OK |
| 037 | Auto REDUCTION | 1:ON / 2:OFF | ON | OK |
| 039 | LCD contrast | NORMAL / DARKER | NORMAL | NG |
| 041 | Remote FAX activation code | ON / OFF | ON CODE=* #9 | NG |
| 044 | Receive alert | 1:ON / 2:OFF | ON | OK |
| 058 | Original setting | 1:NORMAL / 2:LIGHT/ 3: DARKER | NORMAL | OK |
| 068 | ECM Selection | 1: ON / 2: OFF | ON | OK |
| 074 | Location | 1:AUSTRALIA / 2:NEW ZEALAND | AUSTRALIA | OK |
| 076 | FAX tone | 1:ON / 2:OFF | ON | OK |
| 079 | Toner save | 1:ON / 2:OFF | OFF | OK |
| 080 | Set default | YES / NO | NO | NG |
| 501 | Pause time set | 001~600 x 100msec | 030 | OK |
| 502 | Flash time | 01~99 x 10ms | 10 | OK |
| 503 | Dial speed | 1:10pps / 2:20pps | 10 | OK |
| 520 | CED frequency select | 1:2100Hz / 2:1100Hz | 2100 | OK |
| 521 | International mode select | 1:ON / 2:OFF | ON | OK |
| 522 | Auto standby select | 1:ON / 2:OFF | ON | OK |
| 523 | Receive equalizer select | 1:0kms / 2:1.8km / 3:3.6km / 4 :7.2km | 0 km | OK |

| Code | Function | Set Value | Default | Remote Setting |
|---|---|---|---|---|
| 524 | Transmission equalizer select | 1:0kms / 2:1.8km / 3:3.6km / 4 :7.2km | 0 km | OK |
| 527 | V8 Mode | 1:DISABLE /2:ENABLE | ENABLE | OK |
| 529 | Memory clear for Call Service | --------- | --------- | NG |
| 550 | Memory clear | --------- | --------- | NG |
| 551 | ROM check | --------- | --------- | NG |
| 552 | DTMF signal tone test | 1:ON / 2:OFF | OFF | OK |
| 553 | Monitor on FAX communication | 1:OFF / 2:Phase B / 3:ALL | OFF | OK |
| 554 | Modem test | --------- | --------- | NG |
| 556 | Motor test | --------- | --------- | NG |
| 557 | LED test | --------- | --------- | NG |
| 558 | LCD test | --------- | --------- | NG |
| 561 | Key test | --------- | --------- | NG |
| 570 | BREAK % select | 1:61% 2:67% | 67% | OK |
| 573 | Remote turn-on ring number | 01~99 | 10 | OK |
| 590 | FAX auto redial time set | 00~99 | 02 | OK |
| 591 | FAX auto redial time disconnection time set | 001~999sec | 065 | OK |
| 592 | CNG transmit select | 1:OFF / 2:ALL / 3:AUTO | ALL | OK |
| 593 | Time between CED and 300bps | 1:75ms / 2:500ms / 3:1sec | 75ms | OK |
| 594 | Overseas DIS detection select | 1:1st / 2:2nd | 1st | OK |
| 595 | Receive error limit value set | 1:5% / 2:10% / 3:15% / 4:20% | 10% | OK |
| 596 | Transmit level set | -15~00dBm | 11 | OK |
| 598 | Receiving Sensitivity | 20~48 | 43 | OK |
| 599 | ECM Frame size | 1:256 / 2:64 | 256byte | OK |
| 655 | Call service 3 detection number | 00~06 | --------- | NG |
| 710 | Memory clear except History data | --------- | --------- | NG |
| 717 | Transmit speed select | 1:33600/ 2:31200/ 3:28800/ 4: 26400/ 5:24000/ 6:21600/ 7: 19200/ 8:16800/ 9:14400/ 10: 12000/ 11:9600/ 12:7200/ 13: 4800/ 14:2400 | 33600bps | OK |
| 718 | Receive speed select | 1:33600/ 2:31200/ 3:28800/ 4: 26400/ 5:24000/ 6:21600/ 7: 19200/ 8:16800/ 9:14400/ 10: 12000/ 11:9600/ 12:7200/ 13: 4800/ 14:2400 | 33600bps | OK |
| 771 | T1 timer | 1:35sec / 2:60sec (Australia)<br>1:25sec / 2:60sec (New zealand) | 35s | OK |
| 774 | T4 timer | 00~99 × 100msec | 00 | OK |
| 815 | Sensor test | --------- | --------- | NG |
| 852 | Print test pattern | --------- | --------- | NG |
| 853 | Top margin | 1~5 | 3 | OK |

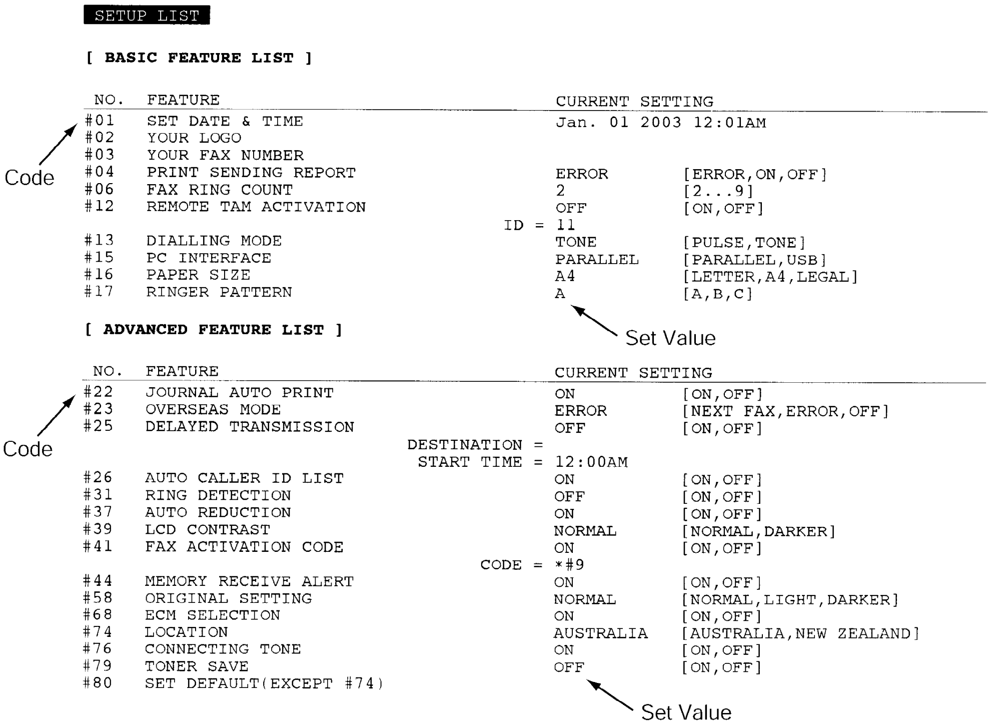
| Code | Function | Set Value | Default | Remote Setting |
|---|---|---|---|---|
| 854 | Left margin | 1~7 | 4 | OK |
| 880 | History list | 1:Start | --------- | NG |
| 881 | Journal 2 | --------- | --------- | NG |
| 882 | Journal 3 | --------- | --------- | NG |
| 991 | Setup list | 1:Start | --------- | OK |
| 994 | Journal list | 1:Start | --------- | OK |
| 995 | Journal 2 list | 1:Start | --------- | OK |
| 996 | Journal 3 list | 1:Start | --------- | OK |
| 998 | History list | 1:Start | --------- | OK |
| 999 | Service list | 1:Start | --------- | OK |

**OK means “can set”.**
**NG means “can not set”.**

**Note:**
**Refer to SERVICE FUNCTION TABLE () for descriptions of the individual codes.**

**Example:**
**If you want to set value in the “004 Transmission report mode”, press the dial key number 1, 2 or 3 corresponding to the Set Value you want to select. (1:ERROR/2:ON/3:OFF)**

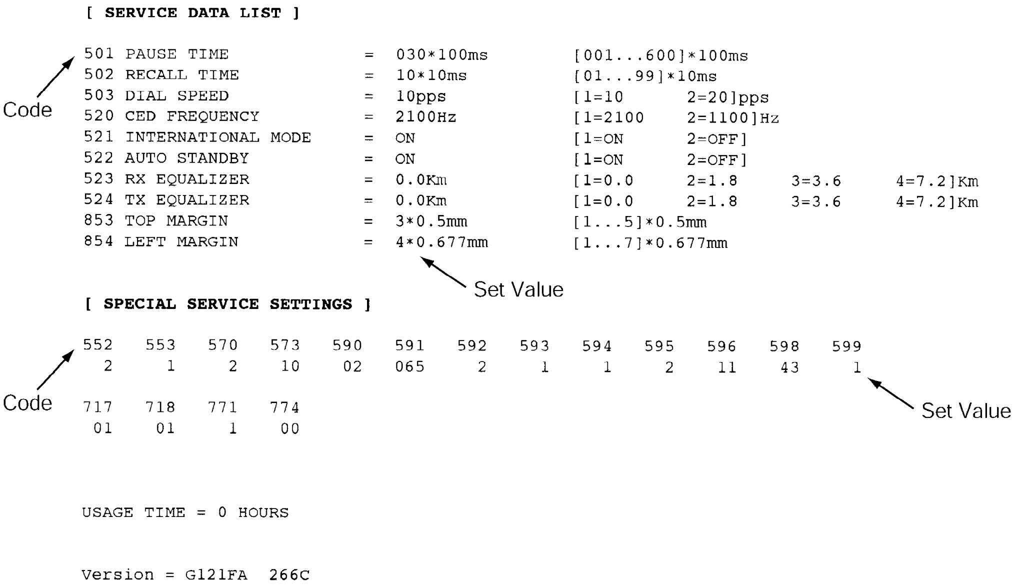
## 6.4.3. USER MODE (The list below is an example of the SYSTEM SETUP LIST the unit prints out.)


Code
Set Value
Code
Set Value

```
SETUP LIST

[ BASIC FEATURE LIST ]

 NO.    FEATURE                              CURRENT SETTING
---------------------------------------------------------------------------
#01     SET DATE & TIME                      Jan. 01 2003 12:01AM
#02     YOUR LOGO
#03     YOUR FAX NUMBER
#04     PRINT SENDING REPORT                 ERROR        [ERROR,ON,OFF]
#06     FAX RING COUNT                       2            [2...9]
#12     REMOTE TAM ACTIVATION                OFF          [ON,OFF]
                                         ID = 11
#13     DIALLING MODE                        TONE         [PULSE,TONE]
#15     PC INTERFACE                         PARALLEL     [PARALLEL,USB]
#16     PAPER SIZE                           A4           [LETTER,A4,LEGAL]
#17     RINGER PATTERN                       A            [A,B,C]

[ ADVANCED FEATURE LIST ]

 NO.    FEATURE                              CURRENT SETTING
---------------------------------------------------------------------------
#22     JOURNAL AUTO PRINT                   ON           [ON,OFF]
#23     OVERSEAS MODE                        ERROR        [NEXT FAX,ERROR,OFF]
#25     DELAYED TRANSMISSION                 OFF          [ON,OFF]
                               DESTINATION =
                                START TIME = 12:00AM
#26     AUTO CALLER ID LIST                  ON           [ON,OFF]
#31     RING DETECTION                       OFF          [ON,OFF]
#37     AUTO REDUCTION                       ON           [ON,OFF]
#39     LCD CONTRAST                         NORMAL       [NORMAL,DARKER]
#41     FAX ACTIVATION CODE                  ON           [ON,OFF]
                                      CODE = *#9
#44     MEMORY RECEIVE ALERT                 ON           [ON,OFF]
#58     ORIGINAL SETTING                     NORMAL       [NORMAL,LIGHT,DARKER]
#68     ECM SELECTION                        ON           [ON,OFF]
#74     LOCATION                             AUSTRALIA    [AUSTRALIA,NEW ZEALAND]
#76     CONNECTING TONE                      ON           [ON,OFF]
#79     TONER SAVE                           OFF          [ON,OFF]
#80     SET DEFAULT(EXCEPT #74)
```

**Note:**
**The above values are the default values.**

## 6.4.4. SERVICE MODE SETTINGS (Example of a printed out list)



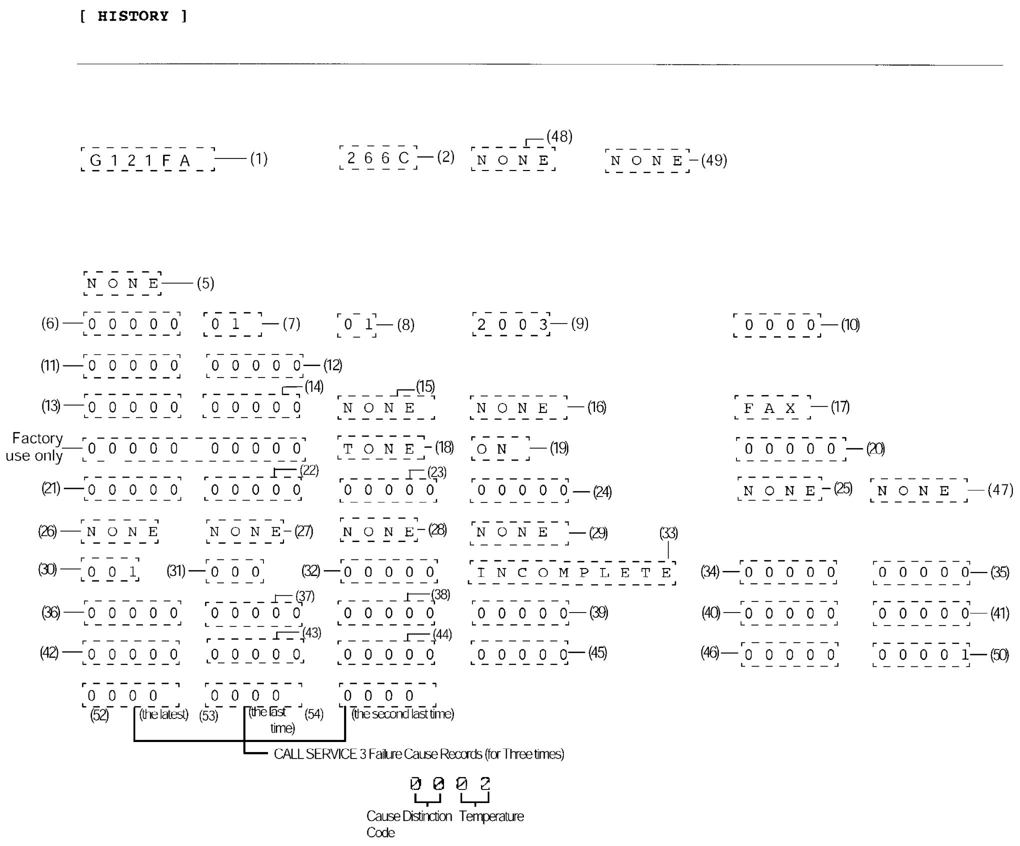
Code
Set Value
Code
Set Value

```
[ SERVICE DATA LIST ]

501 PAUSE TIME              =  030*100ms        [001...600]*100ms
502 RECALL TIME             =  10*10ms          [01...99]*10ms
503 DIAL SPEED              =  10pps            [1=10      2=20]pps
520 CED FREQUENCY           =  2100Hz           [1=2100    2=1100]Hz
521 INTERNATIONAL MODE      =  ON               [1=ON      2=OFF]
522 AUTO STANDBY            =  ON               [1=ON      2=OFF]
523 RX EQUALIZER            =  0.0Km            [1=0.0     2=1.8      3=3.6      4=7.2]Km
524 TX EQUALIZER            =  0.0Km            [1=0.0     2=1.8      3=3.6      4=7.2]Km
853 TOP MARGIN              =  3*0.5mm          [1...5]*0.5mm
854 LEFT MARGIN             =  4*0.677mm        [1...7]*0.677mm

[ SPECIAL SERVICE SETTINGS ]

552   553   570   573   590   591   592   593   594   595   596   598   599
  2     1     2    10    02   065     2     1     1     2    11    43     1

717   718   771   774
 01    01     1    00


USAGE TIME = 0 HOURS


Version = G121FA  266C
```

**Note:**
**The above values are the default values.**

## 6.4.5. HISTORY (Example of a printed out list)

[ HISTORY ]


G121FA (1)
266C (2)
NONE (48)
NONE (49)
NONE (5)
(6) 00000
01 (7)
01 (8)
2003 (9)
0000 (10)
(11) 00000
00000 (12)
(13) 00000
00000 (14)
NONE (15)
NONE (16)
FAX (17)
Factory use only 00000 00000
TONE (18)
ON (19)
00000 (20)
(21) 00000
00000 (22)
00000 (23)
00000 (24)
NONE (25)
NONE (47)
(26) NONE
NONE (27)
NONE (28)
NONE (29)
(33)
(30) 001
(31) 000
(32) 00000
INCOMPLETE
(34) 00000
00000 (35)
(36) 00000
00000 (37)
00000 (38)
00000 (39)
(40) 00000
00000 (41)
(42) 00000
00000 (43)
00000 (44)
00000 (45)
(46) 00000
00001 (50)
0000 (52) (the latest)
0000 (53) (the last time)
0000 (54) (the second last time)
CALL SERVICE 3 Failure Cause Records (for Three times)
0002
Cause Distinction Code
Temperature

NAME ______________ DATE ______________ DEALER ______________
CUSTOMER COMPLAINT

SURVEY RESULT : CKOK (UNKNOWN/DESIGN/EDUC) DEFECT (PART/WORKER/DESIGN)
ABUSE (CUST/DEALER/SHIP) NEW (OPEN/NOT)
PHONE SURVEY RESULT.

**Note:**
**See the following descriptions of this report. Item No. (1) ~ (54) are corresponding to the listed items in DESCRIPTIONS OF THE HISTORY REPORT().**

### 6.4.5.1. DESCRIPTIONS OF THE HISTORY REPORT

**(1) ROM VERSION**
**FLASH ROM version**
**(2) SUM**
**FLASH ROM internal data calculation.**
**(3) YOUR LOGO**
**The user logo recorded in the unit. If it is not recorded, NONE will be displayed.**
**(4) YOUR TELEPHONE NUMBER**

**The user telephone number recorded in the unit. If it is not recorded, NONE will be displayed.**

**(5) Not used**

**(6) FACTORY - CUSTOMER**

**This shows how many days from factory production until the user turns ON the unit.**

**(7) MONTH**

**The shows the very first month, date, year and time set by the user after they purchased the unit.**

**(8) DAY**

**The shows the very first month, date, year and time set by the user after they purchased the unit.**

**(9) YEAR**

**The shows the very first month, date, year and time set by the user after they purchased the unit.**

**(10) TIME**

**The shows the very first month, date, year and time set by the user after they purchased the unit.**

**(11) USAGE TIME**

**The amount of time the unit has been powered ON.**

**(12) FACTORY - NOW**

**This shows how many days from factory production until the user prints out this history list.**

**(13) TEL MODE**

**The amount of time the TEL mode setting was used.**

**(14) FAX MODE**

**The amount of time the FAX mode setting was used.**

**(15) Not used**

**(16) Not used**

**(17) FINAL RECEIVE MODE**

**The last set receiving mode by the user.**

**(18) TONE/PULSE SELECTION**

**The most recently used setting used, either TONE or PULSE.**

**(19) RECEIVE REDUCTION**

**The compression rate when receiving.**

**(20) SETTING NO. OF DIRECTORY**

**The recorded directory stations (one touch dial).**

**(21) NUMBER OF COPY**

**The number of pages copied.**

**(22) NUMBER OF RECEIVE**

**The number of pages received.**

**(23) NUMBER OF SENDING**

**The number of pages sent.**

**(24) NUMBER OF CALLER ID**

**The number of times Caller ID was received.**

**(25) Not used**

**(26) NUMBER OF PC SCAN**

**The number of times multifunction was used for the Scanner. (The number of pages scanned. If the unit does not have a PC interface, NONE will be printed.)**

**(27) NUMBER OF PC-PRINT**

**The number of times multifunction was used for the Printer. (The number of pages printed. If the unit does not have a PC interface, NONE will be printed.)**

**(28) Not used**

**(29) Not used**

**(30) Not used**

**(31) NUMBER OF PRINTING HELP**

The number of help lists printed until now.

(32) NUMBER OF DIVIDED PRINTING IN FAX RECEPTION

The number of faxes received that were divided into more than one sheet since the unit was purchased.

(33) DETECTION OF PC INTERFACE (USB OR PARALLEL)

When the fax and PC interface (USB or parallel) are connected and the signal is received correctly, COMPLETE will be printed. For models without a PC interface or when there is a PC interface but the signal cannot be received between the fax and PC, INCOMPLETE will be printed. (The number of pages transmitted. If the unit does not have a PC interface, NONE will be printed.)

(34), (35) Not used.

(36) FAX MODE

Means the unit received a fax message in the FAX mode.

(37) MAN RCV

Means the unit received a fax message by manual operation.

(38) Not used

(39) Not used

(40) RMT DTMF

Means the unit detected DTMF (Remote Fax activation code) entered remotely.

(41) PAL DTMF

Means the unit detected DTMF (Remote Fax activation code) entered by a parallel connected telephone.

(42) TURN-ON

Means the unit started to receive after 10 rings. (Remote Turn On: Service Code #573)

(43) Not used

(44) Not used

(45) Not used

(46) Not used

(47) Not used

(48) Not Used

(49) Not Used

(50) DRUM COUNT

The number of pages printed by current drum unit.

(51) Not Used

(52) CALL SERVICE 3 failure cause record (the latest)

(53) CALL SERVICE 3 failure cause record (the last time)

(54) CALL SERVICE 3 failure cause record (the second last time)

Note:

See the following descriptions of this report. Item No. (52) (53) (54) are corresponding to the listed items in CALL SERVICE TROUBLESHOOTING GUIDE().

## 6.5. TROUBLESHOOTING DETAILS

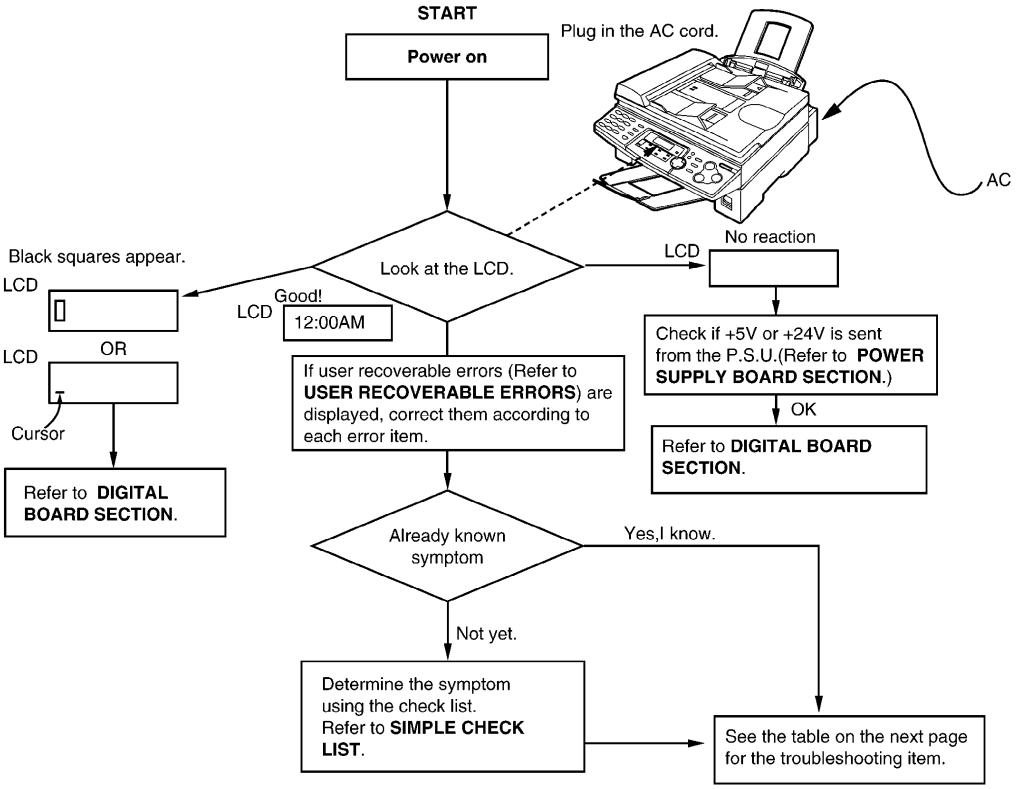
### 6.5.1. OUT LINE

Troubleshooting is for recovering quality and reliability by determining the broken component and replacing, adjusting or cleaning it as required. First, determine the problem then decide the

**troubleshooting method. If you have difficulty finding the broken part, determine which board is broken. (For example: the Digital PCB, Analog PCB, etc.) The claim tag from a customer or dealer may use different expressions for the same problem, as they are not a technician or engineer. Using your experience, test the problem area corresponding to the claim. Also, returns from a customer or dealer often have a claim tag. For these cases as well, you need to determine the problem. Test the unit using the simple check list on SIMPLE CHECK LIST(). Difficult problems may be hard to determine, so repeated testing is necessary.**

## 6.5.2. STARTING TROUBLESHOOTING

**Determine the symptom and the troubleshooting method.**


START
Power on
Plug in the AC cord.
AC
Look at the LCD.
Black squares appear.
LCD
OR
LCD
Cursor
Refer to DIGITAL BOARD SECTION.
Good!
LCD
12:00AM
LCD
No reaction
Check if +5V or +24V is sent from the P.S.U.(Refer to POWER SUPPLY BOARD SECTION.)
OK
Refer to DIGITAL BOARD SECTION.
If user recoverable errors (Refer to USER RECOVERABLE ERRORS) are displayed, correct them according to each error item.
Already known symptom
Yes,I know.
Not yet.
Determine the symptom using the check list. Refer to SIMPLE CHECK LIST.
See the table on the next page for the troubleshooting item.

**CROSS REFERENCE:**

**USER RECOVERABLE ERRORS()**

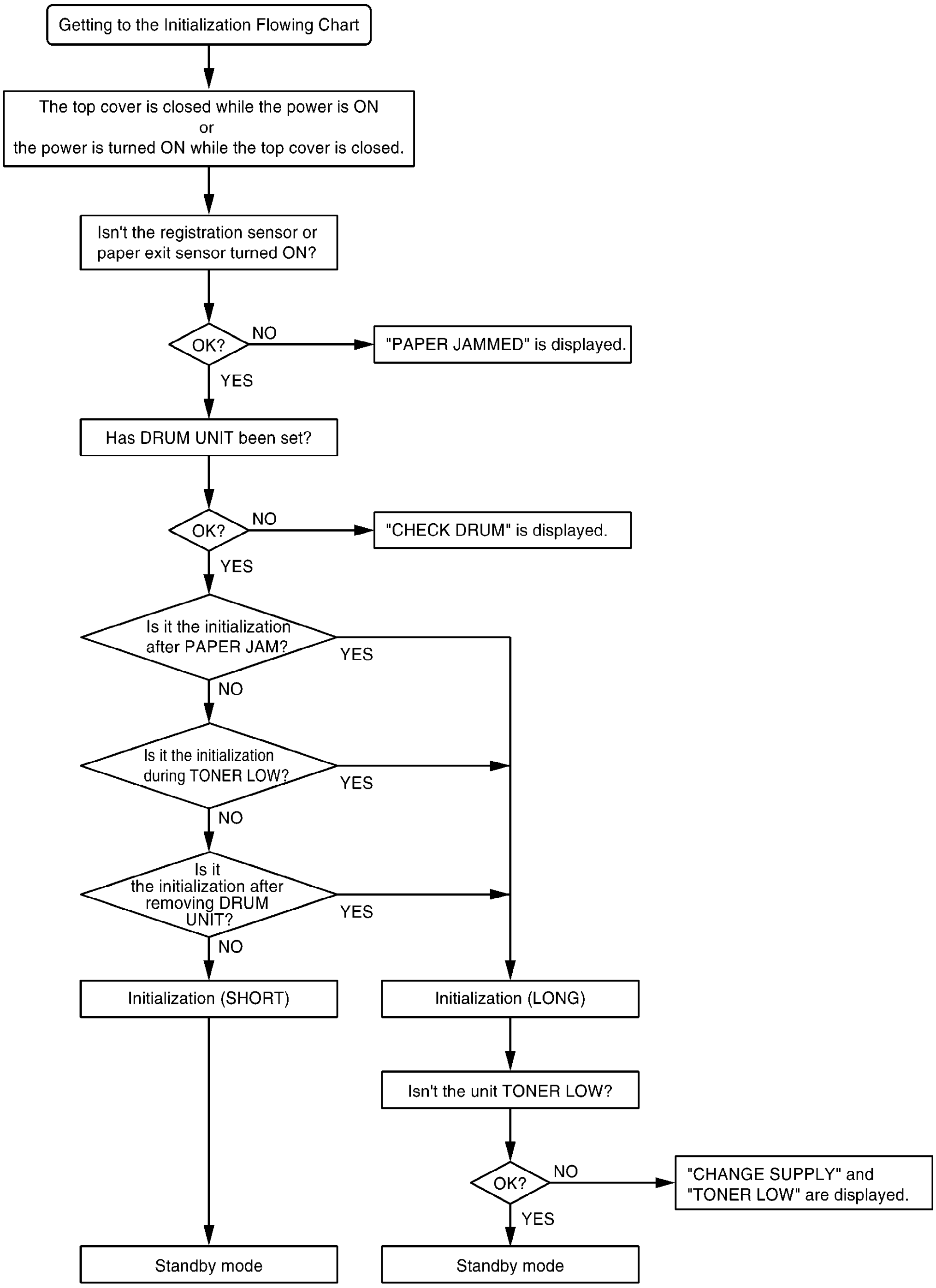
**SIMPLE CHECK LIST()**

**DIGITAL BOARD SECTION()**

**POWER SUPPLY BOARD SECTION()**

## 6.5.3. INITIALIZATION

**There are two types of initialization, one is the short initialization (about 3 seconds) and the other is the long initialization (about 10 seconds). The short initialization makes the unit enter the standby mode. The long initialization makes the unit enter the standby mode after cleaning or detecting the rest of toner.**


Getting to the Initialization Flowing Chart
The top cover is closed while the power is ON or the power is turned ON while the top cover is closed.
Isn't the registration sensor or paper exit sensor turned ON?
OK?
NO
"PAPER JAMMED" is displayed.
YES
Has DRUM UNIT been set?
OK?
NO
"CHECK DRUM" is displayed.
YES
Is it the initialization after PAPER JAM?
YES
NO
Is it the initialization during TONER LOW?
YES
NO
Is it the initialization after removing DRUM UNIT?
YES
NO
Initialization (SHORT)
Initialization (LONG)
Isn't the unit TONER LOW?
OK?
NO
"CHANGE SUPPLY" and "TONER LOW" are displayed.
YES
Standby mode
Standby mode

## 6.5.4. SIMPLE CHECK LIST

SERIAL NO. ____________________ DATE ____________________

| FUNCTION | | JUDGEMENT | REFERENCE |
|---|---|---|---|
| FAX operation | Transmission | OK / NG | |
| | Receiving | OK / NG | |
| Copy operation | Copy by ADF | OK / NG | |
| | Copy by Flat Bed | OK / NG | |
| PC operation | Parallel PC print | OK / NG | |
| | USB PC print | OK / NG | |
| Telephone operation | Handset transceiver/ receiver | OK / NG | |
| | MONITOR sound | OK / NG | |
| | Ringer sound | OK / NG | |
| | Dial operation | OK / NG | |
| | Volume operation | OK / NG | |
| Operation panel | Key check | OK / NG | Service code 561※ |
| | LED check | OK / NG | Service code 557※ |
| | LCD check | OK / NG | Service code 558※ |
| Sensor | Sensor check | OK / NG | Service code 815※ |
| Clock | | OK / NG | Is the time kept correctly?<br>Check with another clock. |
| EXT-TAM | Handset transceiver/receiver | OK / NG | |
| | Remote control | OK / NG | |

**Note:**

**Check according to the service code referring to TEST FUNCTIONS ()**

## 6.5.5. SIMPLIFIED TROUBLESHOOTING GUIDE

### 6.5.5.1. PRINTING

| No. | Symptom | Cause | Countermeasure |
|---|---|---|---|
| 1 | GHOST IMAGE () | Failed drum unit | Replace drum unit |
| | | Failed transfer unit | Check the transfer roller and spring |
| | | Failed the high-voltage terminal | Check the high-voltage terminal |
| | | Failed the high voltage power supply board | Go to HIGH VOLTAGE SECTION () |
| | | Failed fuser unit | Check the heat roller and the pressui roller and the spring and the heat lan thermistor |
| | | Failed the power supply board | Go to POWER SUPPLY BOARD SECT |
| | | Too thick or too thin recording paper | Use the recording paper from 16lb to |
| 2 | DARK OR WHITE VERTICAL LINE () | Dirty the lower glass or the reflecting mirror | Clean the lower glass and the reflecti |
| | | Dust on the path of the laser beam | Clean the path of the laser beam |
| | | Dust on the developer roller | Replace drum unit |
| | | Failed the heat roller or the pressuizedr roller | Check the heat roller and the pressur |
| | | Failed LSU | Go to LSU SECTION () |
| 3 | DARK OR WHITE HORIZONTAL LINE () | Failed drum unit | Replace drum unit |
| | | Failed the gear | Check the gear |
| | | Failed the engine motor | Go to ENGINE MOTOR () |
| | | Failed the high-voltage terminal | Check the high-voltage terminal |
| | | Failed the high voltage power supply board | Go to HIGH VOLTAGE SECTION () |
| | | Scratch on the OPC drum | Replace drum unit |
| | | Static electricity on the documents (when copying) | Check the connection between the pa around CIS and earth |
| 4 | DIRTY OR HALF DARKNESS BACKGROUND () | Failed drum unit | Replace drum unit |
| | | Life of drum unit is over | Replace drum unit |
| | | Dirty the pickup roller and the regist roller and the feed roller and the eject roller and the heat roller and the pressure roller | Clean the pickup roller and the regist and the feed roller and the eject rolle heat roller and the pressure roller |
| | | Failed the high-voltage terminal | Check the high-voltage terminal |
| | | Failed the high voltage power supply board | Go to HIGH VOLTAGE SECTION () |
| | | Dirty the recording paper path | Clean the recording paper path |
| 5 | BLACK PRINT () | Failed drum unit | Replace drum unit |
| | | Failed LSU | Go to LSU SECTION () |
| | | Failed the high-voltage terminal | Check the high-voltage terminal |
| | | Failed the high voltage power supply board | Go to HIGH VOLTAGE SECTION () |
| | | Failed the digital board | Check the digital board |
| | | Failed CIS (when copying) | Go to CIS (Contact Image Sensor) SE |

| No. | Symptom | Cause | Countermeasure |
|---|---|---|---|
| 6 | LIGHT PRINT () | Short toner | Supply toner |
| | | Failed drum unit | Replace drum unit |
| | | Life of drum unit is over | Replace drum unit |
| | | Dirty the lower glass or the reflecting mirror | Clean the lower glass and the reflecti |
| | | Failed the high-voltage terminal | Check the high-voltage terminal |
| | | Failed the high voltage power supply board | Go to HIGH VOLTAGE SECTION () |
| 7 | BLACK DENSITY IS LIGHT OR UNEVEN. () | Short toner | Supply toner |
| | | Failed drum unit | Replace drum unit |
| | | Life of drum unit is over | Replace drum unit |
| | | Dirty the lower glass or the reflecting mirror | Clean the lower glass and the reflecti |
| | | Failed the high-voltage terminal | Check the high-voltage terminal |
| | | Failed the high voltage power supply board | Go to HIGH VOLTAGE SECTION () |
| 8 | BLANK PRINT () | Failed drum unit | Replace drum unit |
| | | Failed LSU | Go to LSU SECTION () |
| | | Failed the high-voltage terminal | Check the high-voltage terminal |
| | | Failed the high voltage power supply board | Go to HIGH VOLTAGE SECTION () |
| | | Failed the digital board | Check the digital board |
| | | Failed CIS (when copying) | Go to CIS (Contact Image Sensor) SE |
| 9 | BLACK OR WHITE POINT () | Failed the developer roller (27mm pitch) | Replace drum unit |
| | | Failed theOPC drum (75mm pitch) | Replace drum unit |
| | | Failed the heat roller (50mm pitch) | Check the heat roller |
| | | Failed the charge blush | Replace drum unit |
| | | Failed the high voltage power supply board | Go to HIGH VOLTAGE SECTION () |
| | | Too thick or too thin recording paper | Use the recording paper from 16lb to |

### 6.5.5.2. RECORDING PAPER FEED

| No. | Symptom | Cause | Countermeasure |
|---|---|---|---|
| 1 | MULTIPLE FEED () | Dirty or failed the pickup roller | Clean or replace the pickup roller |
| | | Dirty or failed the pickup rubber | Clean or replace the pickup rubber |
| 2 | THE RECORDING PAPER IS WAVED OR WRINKLED () | Dirty the pressure roller or the heat roller | Clean the pressure roller and the hea |
| | | Failed the spring of pressure roller | Replace the spring of pressure roller |
| | | Too thin recording paper | Use the recording paper from 16lb to |
| 3 | SKEW () | Dirty or failed the pickup roller | Clean or replace the pickup roller |
| | | Dirty or failed the pickup rubber | Clean or replace the pickup rubber |
| | | Dirty or failed the regist roller | Clean or replace the regist roller |
| | | Dust on the recording paper path | Clean the recording paper path |
| | | Failed LSU | Replace LSU |
| | | Over the max capacity of the recording paper | Set up to MAX 150 sheets |
| | | Too thick or too thin recording paper | Use the recording paper from 16lb to |
| 4 | THE RECORDING PAPER DOES NOT FEED () | Dirty or failed the pickup roller | Clean or replace the pickup roller |
| | | Dirty or failed the pickup rubber | Clean or replace the pickup rubber |
| | | Failed the solenoid | Replace the solenoid |
| | | Failed the gear | Check the gear |
| | | Failed the engine motor | Go to ENGINE MOTOR () |
| | | Failed the regist sensor lever | Check the regist sensor lever |
| | | Failed the regist sensor | ----- |
| 5 | THE RECORDING PAPER JAM()” PAPER JAMED” ON THE LCD | Dirty or failed the pressure roller | Clean or replace the pressure roller |
| | | Dirty or failed the heat roller | Clean or replace the heat roller |
| | | Dust on the recording paper path | Clean the recording paper path |
| | | Failed the regist roller | Replace the regist roller |
| | | Failed the gear | Check the gear |
| | | Failed the engine motor | Go to ENGINE MOTOR () |
| | | Failed the regist sensor lever | Check the regist sensor lever |
| | | Failed the regist sensor | ----- |
| | | Failed the exit sensor lever | Check the exit sensor lever |
| | | Failed the exit sensor | Go to PAPER EXIT SENSOR..... “PAP JAMMED” () |
| | | Too thick or too thin recording paper | Use the recording paper from 16lb to |
| | | Not set the toner bottle | Set toner bottle |
| 6 | BACK SIDE OF THE RECORDING PAPER IS DIRTY() | Dirty the recording paper path | Clean the recording paper path |
| | | Dirty the pressure roller | Clean the pressure roller |
| | | Dirty the regist roller | Clean the regist roller |
| | | Failed the high-voltage terminal | Check the high-voltage terminal |
| | | Failed the high voltage power supply board | Go to HIGH VOLTAGE SECTION () |

### 6.5.5.3. COPY AND FAX

| No. | Symptom | Cause | Countermeasure |
|---|---|---|---|
| 1 | NO DOCUMENT FEED (NO DOCUMENT FEED,DOCUMENT JAM and MULTIPLE DOCUMENT FEED.) () | Failed the document sensor lever | Replace the document sensor lever |
| | | Failed the document sensor | Go to DOCUMENT SENSOR....”CHEC DOCUMENT” AND PAPER FEED SENSOR....”REMOVE DOCUMENT” ( |
| | | Dirty or failed the separation roller | Clean or replace the separation roller |
| | | Dirty or failed the separation rubber | Clean or replace the separation rubb |
| | | Failed the separation spring | Replace the separation spring |
| | DOCUMENT JAM (NO DOCUMENT FEED,DOCUMENT JAM and MULTIPLE DOCUMENT FEED.) () | Dust or scratch on the document paper path | Clean the document paper path |
| | | Failed the gear | Check the gear |
| | | Failed the ADF motor | Go to ADF MOTOR () |
| | | Failed the ADF cover open switch lever | Replace the ADF cover open switch l |
| | | Failed the ADF cover open switch | Go to ADF COVER OPEN SWITCH () |
| | MULTIPLE DOCUMENT FEED (NO DOCUMENT FEED,DOCUMENT JAM and MULTIPLE DOCUMENT FEED.) () | Dirty or failed the separation roller | Clean or replace the separation roller |
| | | Dirty or failed the separation rubber | Clean or replace the separation rubb |
| | | Failed the separation spring | Replace the separation spring |
| 2 | SKEW () | Dust or scratch on the document paper path | Clean the document paper path |
| | | Failed the document feed roller | Replace the document feed roller |
| | | Failed the document guide | Replace the document guide |
| 3 | SCANNER GLASS() | Failed CIS unit holder | Replace CIS unit holder |
| 4 | THE SENT FAX DATA IS SKEWED () | The cause of ADF | Go to ADF () |
| | | The cause of scanner glass | ---- |
| | | Ploblem with the other FAX machine | |
| 5 | THE RECEIVED FAX DATA IS SKEWED () | The cause of printing | Go to SKEW () |
| | | Ploblem with the other FAX machine | |
| 6 | THE RECEIVED OR COPIED DATA IS EXPANDED () | Dirty or failed the drive roller (at ADF) | Clean or replace the drive roller |
| | | Dirty or failed the document feed roller (at ADF) | Clean or replace the document feed r |
| | | Dirty or failed the separation roller (at ADF) | Clean or replace the separation roller |
| | | Failed CIS movement (at SG) | Replace the belt or the gear or the sh ADF motor |

| No. | Symptom | Cause | Countermeasure |
|---|---|---|---|
| 7 | BLACK OR WHITE VERTICAL LINE IS COPIED () | Dirty or failed the white plate (2 places) | Clean or replace the white plate |
| | | Dirty or failed the glass board | Clean or replace the glass board |
| | | The cause of printing | Go to DARK OR WHITE VERTICAL LI |
| | | Failed CIS | Go to CIS (Contact Image Sensor) SE |
| 8 | AN ABNORMAL IMAGE IS COPIED () | Dirty or failed the white plate (2 places) | Clean or replace the white plate |
| | | Dirty or failed the glass board | Clean or replace the glass board |
| | | Dirty or failed the drive roller (at ADF) | Clean or replace the drive roller |
| | | Dirty or failed the document feed roller (at ADF) | Clean or replace the document feed r |
| | | Dirty or failed the separation roller (at ADF) | Clean or replace the separation roller |
| | | Failed CIS movement (at SG) | Replace the belt or the gear or the sh ADF motor |
| | | Failed CIS | Go to CIS (Contact Image Sensor) SE |
| | | The cause of printing | Go to DARK OR WHITE VERTICAL LI |

#### 6.5.5.4. Others

| No. | Symptom | Cause | Countermeasure |
|---|---|---|---|
| 1 | Cannot print legal size | Not selected the legal mode | Select the legal mode in the user programming mode |
| 2 | 'CHECK DRUM' on the LCD | No connection between the drum unit and the whole unit | Replace the drum unit or the terminal unit |
| | | Failed the drum sensor | Go to DRUM SENSOR....”CHECK DRU |
| 3 | 'CHANGE DRUM' on the LCD | The toner sensor cannot detect the drum unit | Replace the toner sensor lever or che analog board |
| | | Dust between the drum unit and the toner sensor (especially metals) | Remove the dust |
| 4 | 'OUT OF PAPER' on the LCD | Failed the paper sensor lever | Replace the paper sensor lever |
| | | Failed the paper sensor | Go to PAPER SENSOR..... “OUT OF P |
| 5 | 'COVER OPEN' on the LCD | Failed the top cover open switch lever | Replace the top cover open switch le |
| | | Failed the top cover open switch | Go to TOP COVER OPEN SWITCH....’ OPEN” () |
| 6 | CALL SERVICE 1' on the LCD | The polygon motor of LSU is unusually | Check the conector and LSU and the board |
| 7 | CALL SERVICE 2' on the LCD | The laser of LSU is unusually | Check the conector and LSU and the board |
| 8 | CALL SERVICE 3' on the LCD | The fuser temperature is unusually | Check the conector and the fuser and thermistor and the digital board |
| 9 | CALL SERVICE 4' on the LCD | The fan motor is unusually | Check the conector and the fan moto digital board |

## 6.5.6. CALL SERVICE TROUBLESHOOTING GUIDE

**Call Service related error is most frequent.**
**Call Service 1 ----- Polygon doesn’t rotate......... Refer to LSU (Laser Scanning Unit) SECTION ().**

- **First, listen to the sound. If rotation sound isn't heard, check 24V line, POLON signal and POLCLK signal. If even a little of sound is heard, check XREADY signal.**

**Call Service 2 ----- Laser isn't output.......... Refer to LSU (Laser Scanning Unit) SECTION ()**

- **This can be judged only by referring to signal. Check 5V line, LDEN and VIDEO.**

**Call Service 3 ----- Detection of fixing temperature.......... Refer to HEAT LAMP CONTROL CIRCUIT ()**

- **The most possible reason is that connector isn't engaged firmly. And comparator (IC611) on the digital PCB might be broken because of static electricity. There are 2 kinds of temperature errors, “low temperature error”, which means that low voltage is input to the comparator and “high temperature error”, which means that high voltage is input to the comparator.**

- *Service mode *655 tells the detection number and 3 latest temperatures of the thermistor. The detection point of the Call Service 3 and the thermistor temperature is displayed. Maximum 3 latest temperatures are displayed showing the newest on the left. [AABB CCDD EEFF] AA, CC and EE show the detection points and BB, DD and FF show their temperature detection points.
  00: means that CALL SERVICE 3 has not been appeared.
  01: means that it did not reach 85°C within 11 seconds since the heater was turned ON.
  03: means that it did not reach the secondary stabilizing temperature (180°C) within 30 seconds from 85°C.
  04: means that it became T2-55deg (125°C or below) after T2; the secondary stabilizing temperature (180°C). (The heater has burnt out.)
  05: means that it became over 247°C.
  06: means that during printing the SHORT of the thermistor (AD: 0FF HEX) was detected.

Call Service 4 ----- Rotation of Fan.......... Refer to FAN MOTOR SECTION ()

- Connector isn’t inserted firmly, dust is caught in and the fan is broken.
  * As for Call Services 1, 2 and 4, turn the power OFF then ON to restart.

<Note>

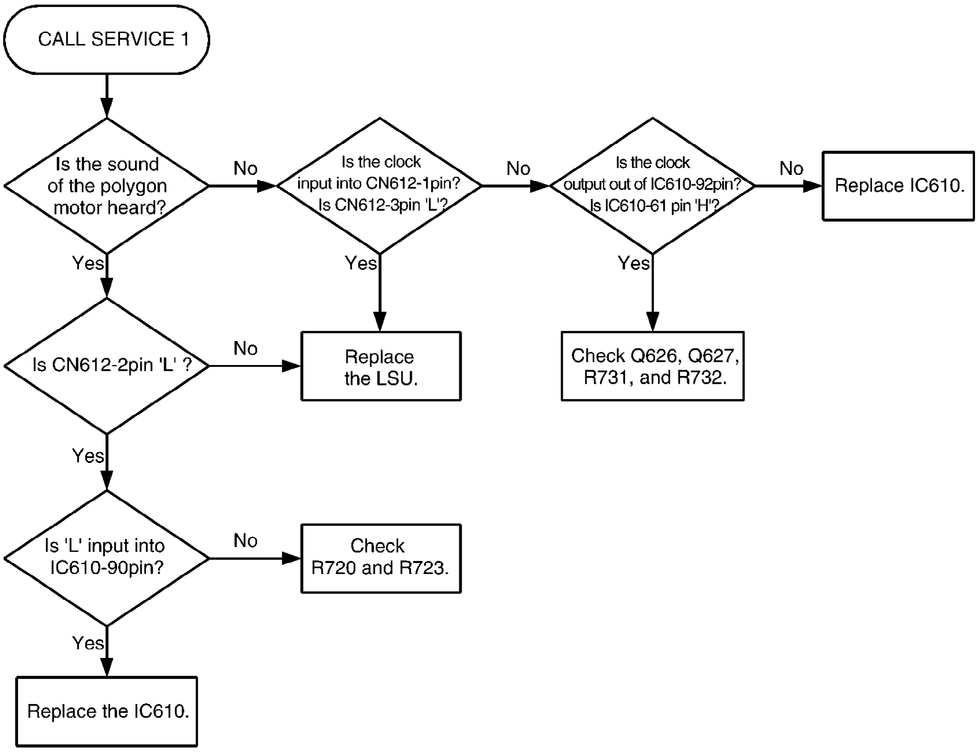
Once “CALL SERVICE3” is displayed, the unit does not disappear until the Factory Setup or Servi
Function #529 is executed.

Therefore Service Function #529 should be executed before the confirmation, and #529 should be
the countermeasure.

### 6.5.6.1. CALL SERVICE 1

"CALL SERVICE 1" means that the polygon motor inside the LSU does not rotate.
The rotation of the polygon motor is detected by IC610-90pin (XREADY).

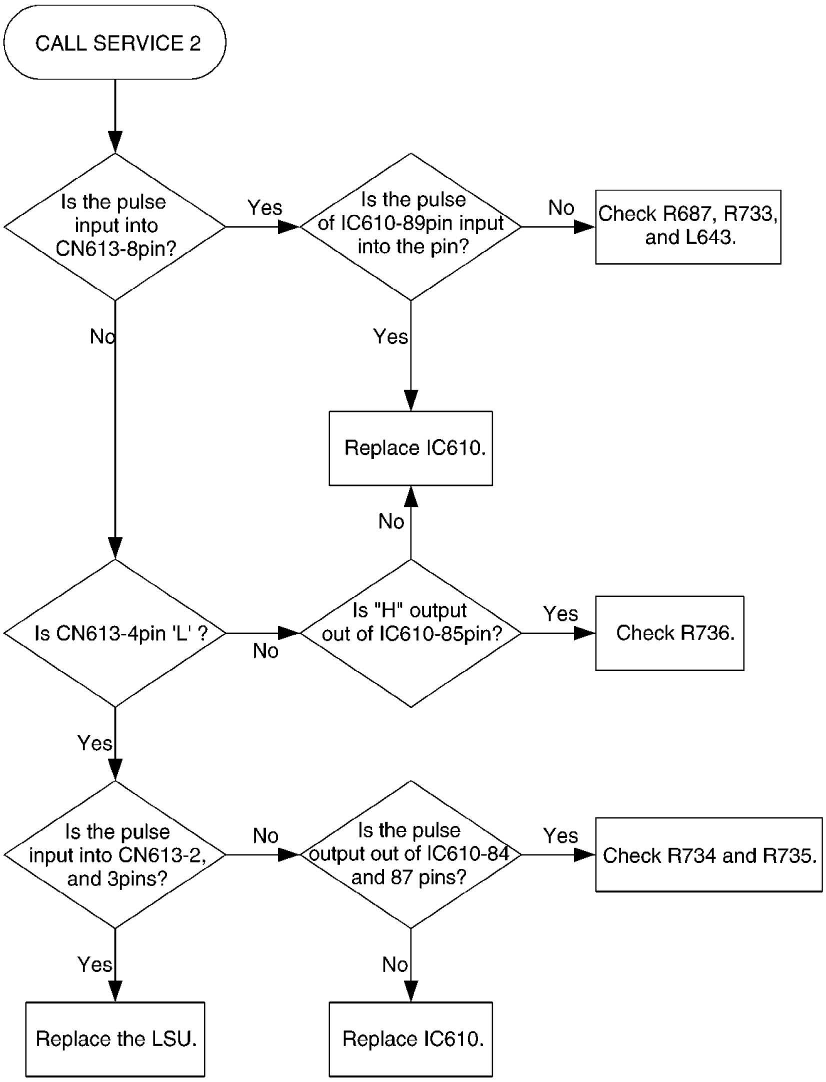
After the LCD indicates "CALL SERVICE 1 ", turn the power OFF/ON.
Then, when the unit starts initial operation, confirm that the rotating sound of the polygon motor is heard before the engine motor starts to run.


CALL SERVICE 1
Is the sound of the polygon motor heard?
No
Is the clock input into CN612-1pin? Is CN612-3pin 'L'?
No
Is the clock output out of IC610-92pin? Is IC610-61 pin 'H'?
No
Replace IC610.
Yes
Yes
Yes
Is CN612-2pin 'L' ?
No
Replace the LSU.
Check Q626, Q627, R731, and R732.
Yes
Is 'L' input into IC610-90pin?
No
Check R720 and R723.
Yes
Replace the IC610.

### 6.5.6.2. CALL SERVICE 2

**"CALL SERVICE 2" means that the synchronous signal out of the LSU cannot be detected. The synchronous signal out of the LSU is detected by IC 610-89pin. (XHSYNC)**

After the LCD indicates "CALL SERVICE 2 ", turn the power ON/OFF, then confirm the waveform when the unit starts initial operation.

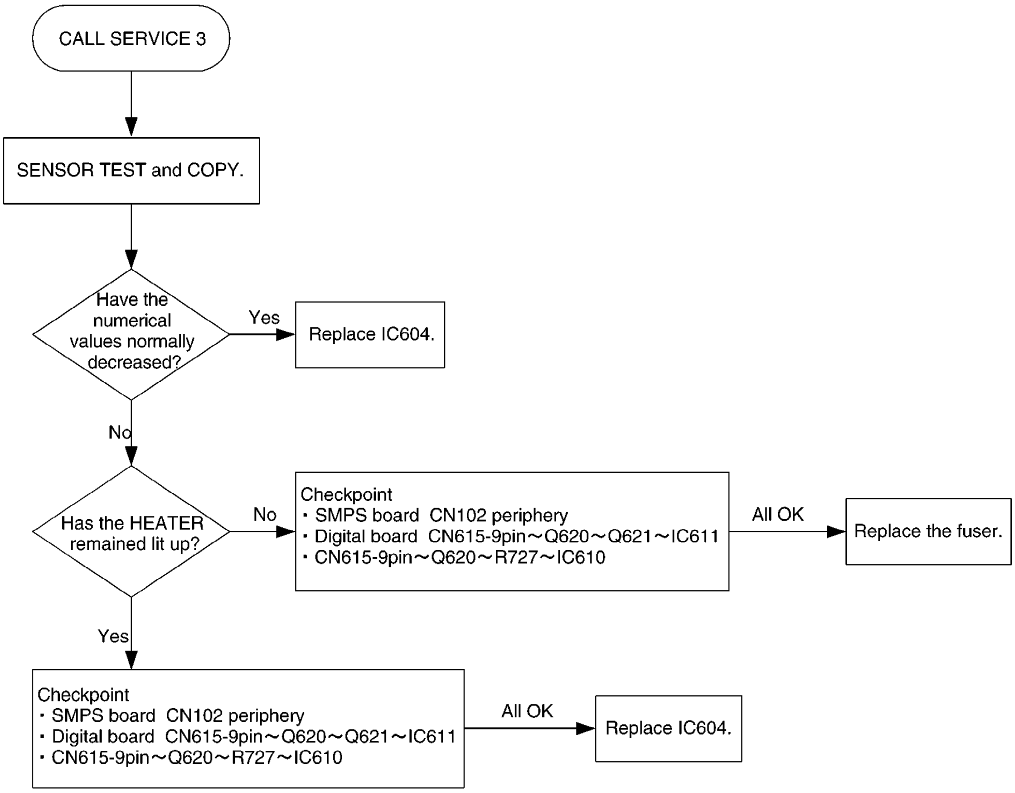

CALL SERVICE 2
Is the pulse input into CN613-8pin?
Yes
Is the pulse of IC610-89pin input into the pin?
No
Check R687, R733, and L643.
No
Yes
Replace IC610.
No
Is CN613-4pin 'L' ?
No
Is "H" output out of IC610-85pin?
Yes
Check R736.
Yes
Is the pulse input into CN613-2, and 3pins?
No
Is the pulse output out of IC610-84 and 87 pins?
Yes
Check R734 and R735.
Yes
No
Replace the LSU.
Replace IC610.

**Note:**
**As for the "Pulse" waveform of the above flow chart, see the timing chart.**

### 6.5.6.3. CALL SERVICE 3

**"CALL SERVICE 3" means that the temperature of the fuser does not rise up to or exceed a constant temperature.**
**The temperature is monitored with the thermistor inside the fuser and detected with the voltage input into IC 604-Y6pin.**

After the LCD indicate "CALL SERVICE 3" , perform the MENU →#→ 9000 → ✱529. Then, turn the power OFF/ON.
Perform the SENSOR TEST in service mode.
SENSOR TEST can be performed by pressing MENU→ # → 9000→✱815.
1: Normal mode (default)
2: The temperature is displayed on the LCD.
In this state, perform the copy operation to confirm how the two-digit numbers on the LCD change. In normal times, '3F' is displayed in the waiting state, and '1A' or its approximate numbers are displayed during printing.

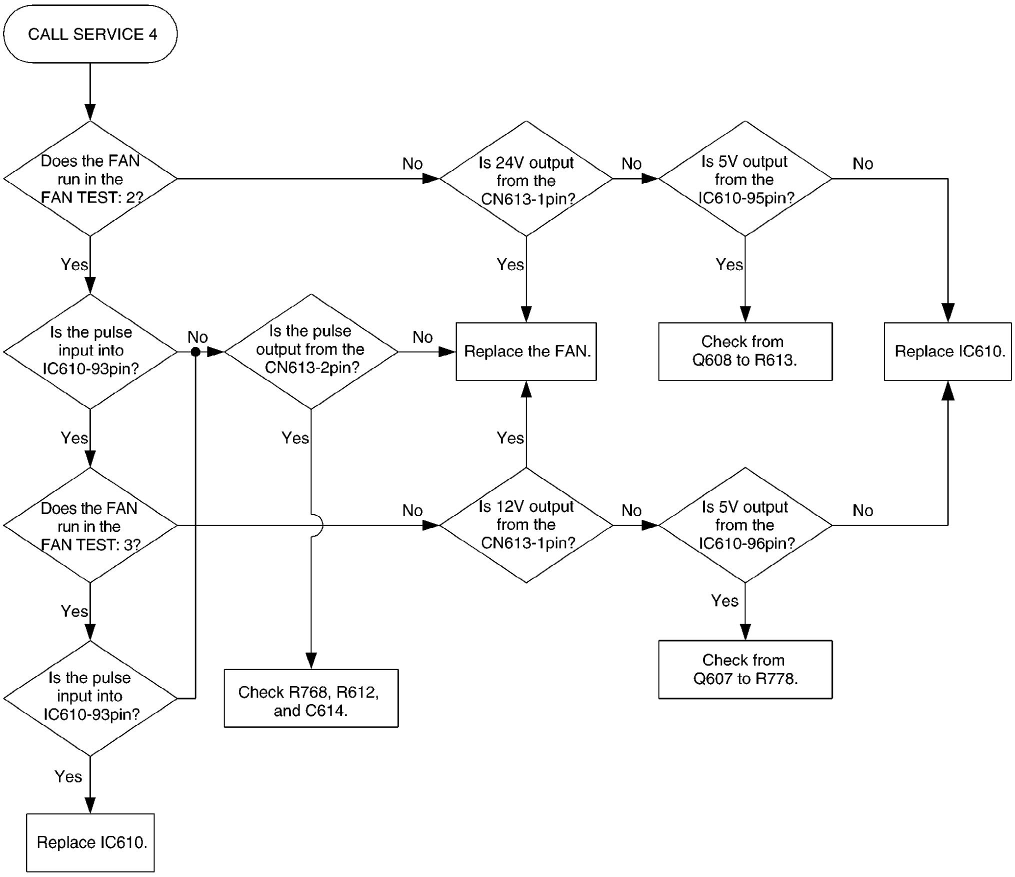

CALL SERVICE 3
SENSOR TEST and COPY.
Have the numerical values normally decreased?
Yes
Replace IC604.
No
Has the HEATER remained lit up?
No
Checkpoint
・SMPS board CN102 periphery
・Digital board CN615-9pin~Q620~Q621~IC611
・CN615-9pin~Q620~R727~IC610
All OK
Replace the fuser.
Yes
Checkpoint
・SMPS board CN102 periphery
・Digital board CN615-9pin~Q620~Q621~IC611
・CN615-9pin~Q620~R727~IC610
All OK
Replace IC604.

### 6.5.6.4. CALL SERVICE 4

**"CALL SERVICE 4" means that the FAN does not run or the running of the FAN cannot be detected normally.**
**The running of the FAN is detected by IC 610-93pin. "CALL SERVICE 4" is displayed when it detects NG five times continuously.**
**After reparing, copy five times.If “CALL SERVICE 4 “ is displayed,check again.**

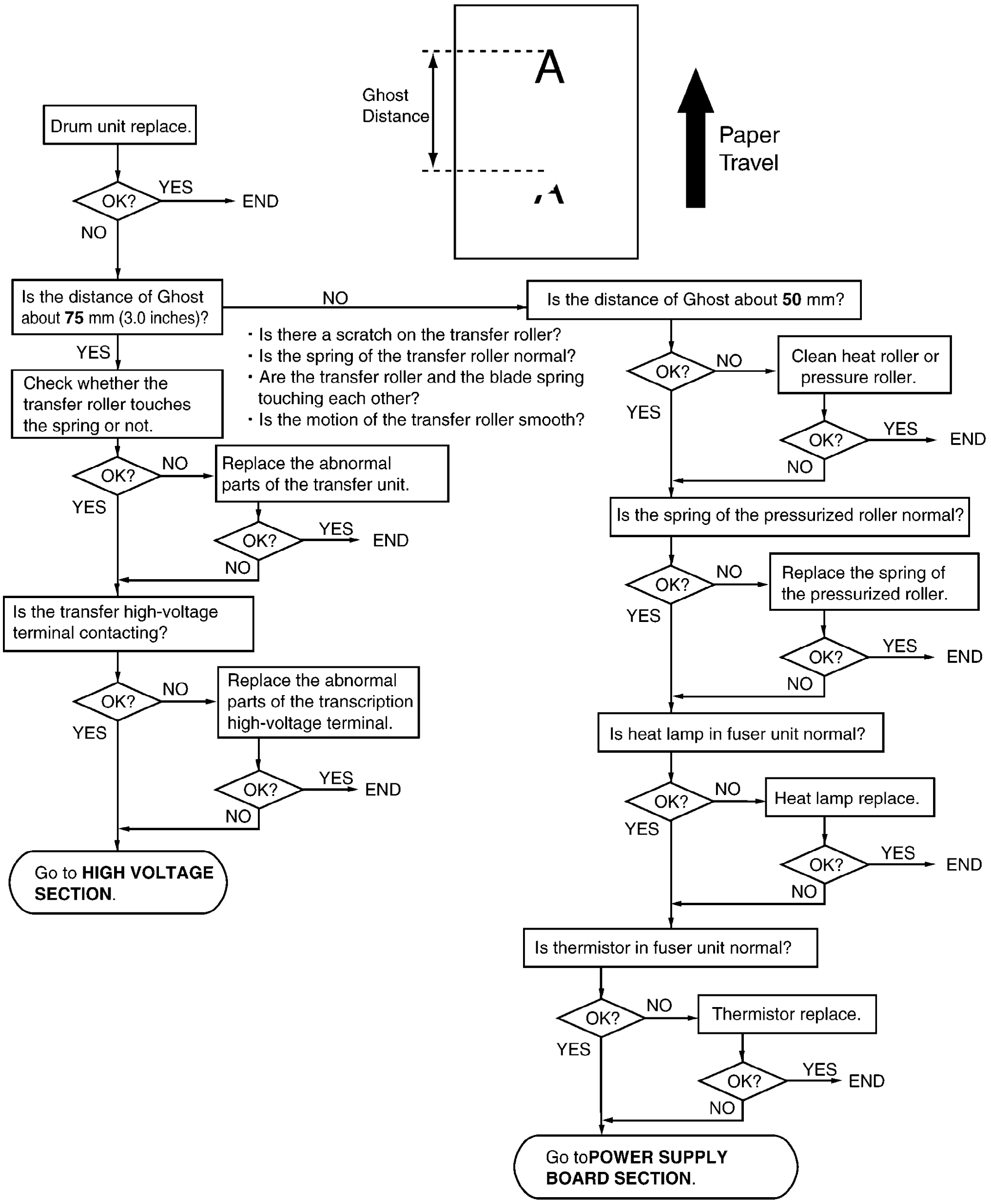
After the LCD indicates "CALL SERVICE 4 " , turn the power OFF/ON.
Then, perform the FAN TEST in service mode.
This can be performed by pressing MENU→#→9000→*677.

1: OFF (Default)
2: ON (High Speed)
3: ON (Low Speed)


CALL SERVICE 4
Does the FAN run in the FAN TEST: 2?
No
Yes
Is 24V output from the CN613-1pin?
No
Yes
Is 5V output from the IC610-95pin?
No
Yes
Is the pulse input into IC610-93pin?
No
Yes
Is the pulse output from the CN613-2pin?
No
Yes
Replace the FAN.
Check from Q608 to R613.
Replace IC610.
Does the FAN run in the FAN TEST: 3?
No
Yes
Is 12V output from the CN613-1pin?
No
Yes
Is 5V output from the IC610-96pin?
No
Yes
Is the pulse input into IC610-93pin?
Yes
Check R768, R612, and C614.
Check from Q607 to R778.
Replace IC610.

## 6.5.7. PRINT

### 6.5.7.1. GHOST IMAGE

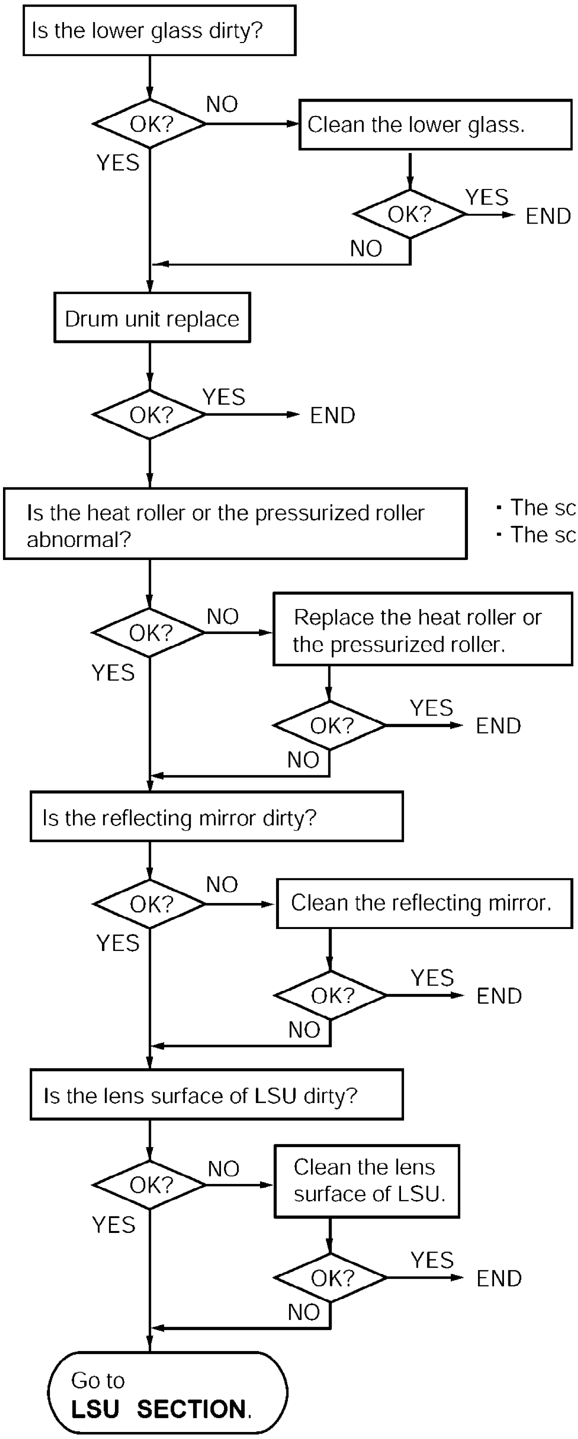

Ghost Distance
A
A
Paper Travel
Drum unit replace.
OK?
YES
END
NO
Is the distance of Ghost about **75** mm (3.0 inches)?
NO
Is the distance of Ghost about **50** mm?
YES
Check whether the transfer roller touches the spring or not.
・Is there a scratch on the transfer roller?
・Is the spring of the transfer roller normal?
・Are the transfer roller and the blade spring touching each other?
・Is the motion of the transfer roller smooth?
OK?
NO
Replace the abnormal parts of the transfer unit.
YES
OK?
YES
END
NO
Is the transfer high-voltage terminal contacting?
OK?
NO
Replace the abnormal parts of the transcription high-voltage terminal.
YES
OK?
YES
END
NO
Go to **HIGH VOLTAGE SECTION**.
OK?
NO
Clean heat roller or pressure roller.
YES
OK?
YES
END
NO
Is the spring of the pressurized roller normal?
OK?
NO
Replace the spring of the pressurized roller.
YES
OK?
YES
END
NO
Is heat lamp in fuser unit normal?
OK?
NO
Heat lamp replace.
YES
OK?
YES
END
NO
Is thermistor in fuser unit normal?
OK?
NO
Thermistor replace.
YES
OK?
YES
END
NO
Go to**POWER SUPPLY BOARD SECTION**.

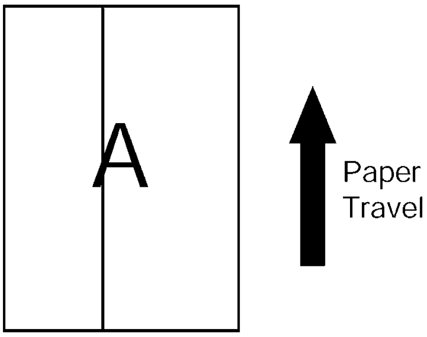
**CROSS REFERENCE:**

**HIGH VOLTAGE SECTION()**

**POWER SUPPLY BOARD SECTION()**

### 6.5.7.2. DARK OR WHITE VERTICAL LINE


Is the lower glass dirty?
OK?
NO
YES
Clean the lower glass.
OK?
YES
END
NO
Drum unit replace
OK?
YES
END
Is the heat roller or the pressurized roller abnormal?
· The scratch and dirt of the heat roller
· The scratch and dirt of the pressurized roller
OK?
NO
YES
Replace the heat roller or the pressurized roller.
OK?
YES
END
NO
Is the reflecting mirror dirty?
OK?
NO
YES
Clean the reflecting mirror.
OK?
YES
END
NO
Is the lens surface of LSU dirty?
OK?
NO
YES
Clean the lens surface of LSU.
OK?
YES
END
NO
Go to LSU SECTION.


A
Paper Travel

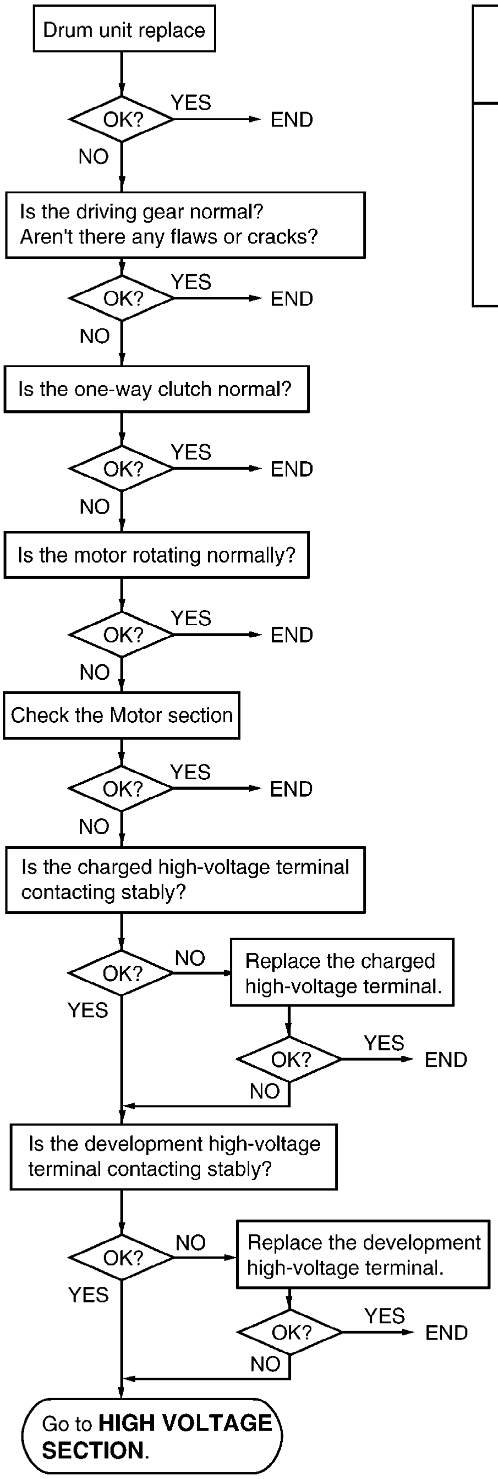
**Note:**

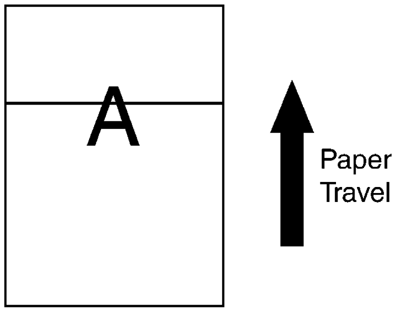
**When wiping the lower glass, reflecting mirror and LSU lens, use a dry and soft cloth.**

**CROSS REFERENCE:**

**LSU SECTION ()**

### 6.5.7.3. DARK OR WHITE HORIZONTAL LINE


Drum unit replace
OK?
YES
END
NO
Is the driving gear normal?
Aren't there any flaws or cracks?
OK?
YES
END
NO
Is the one-way clutch normal?
OK?
YES
END
NO
Is the motor rotating normally?
OK?
YES
END
NO
Check the Motor section
OK?
YES
END
NO
Is the charged high-voltage terminal contacting stably?
OK?
NO
Replace the charged high-voltage terminal.
YES
OK?
YES
END
NO
Is the development high-voltage terminal contacting stably?
OK?
NO
Replace the development high-voltage terminal.
YES
OK?
YES
END
NO
Go to **HIGH VOLTAGE SECTION**.


A
Paper
Travel

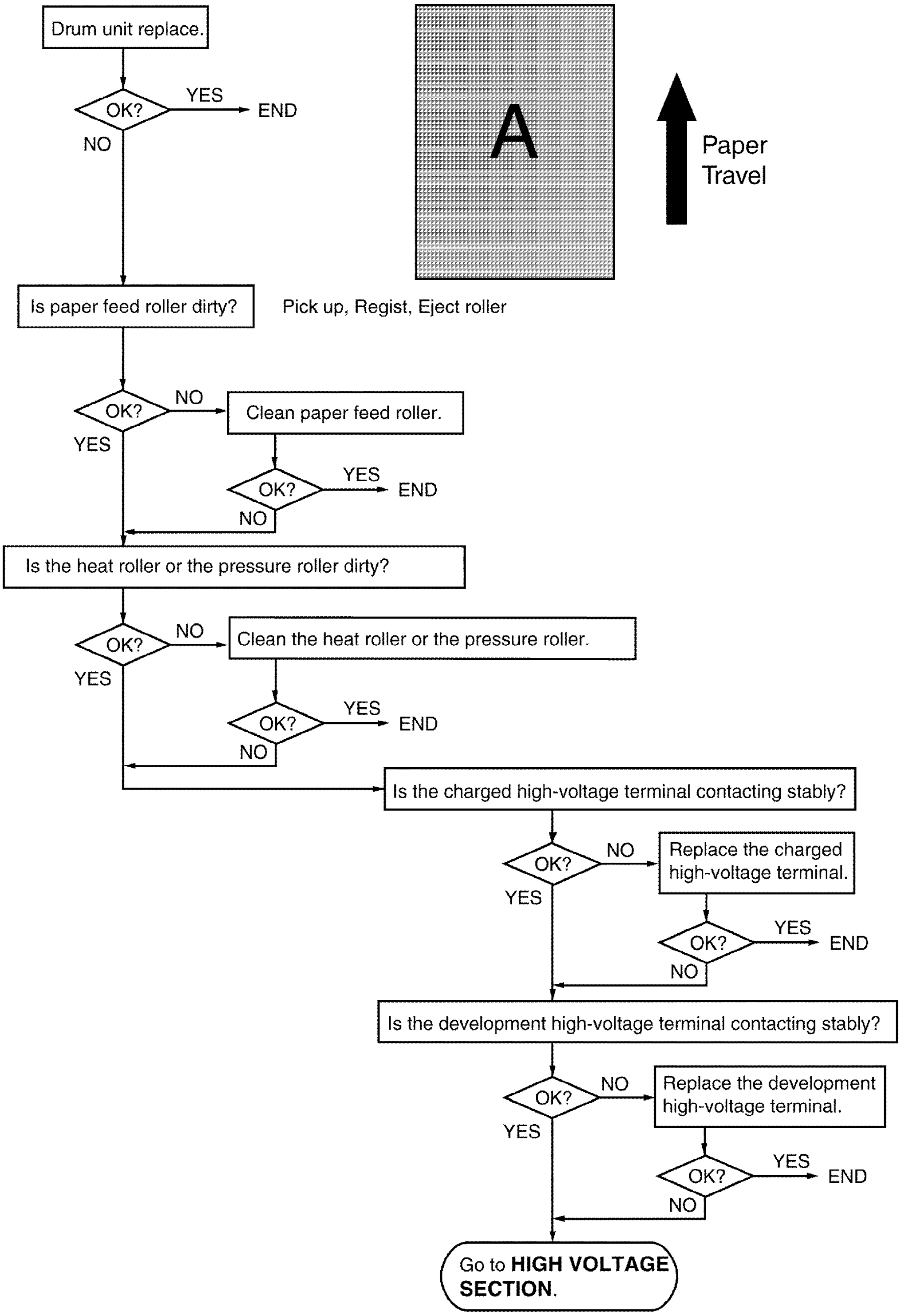
・It is necessary to describe the information about the lines that cannot be troubleshooted in such as halftone.

・When there is the information about the troubleshooted horizontal line, please add the description of it.

**CROSS REFERENCE:**

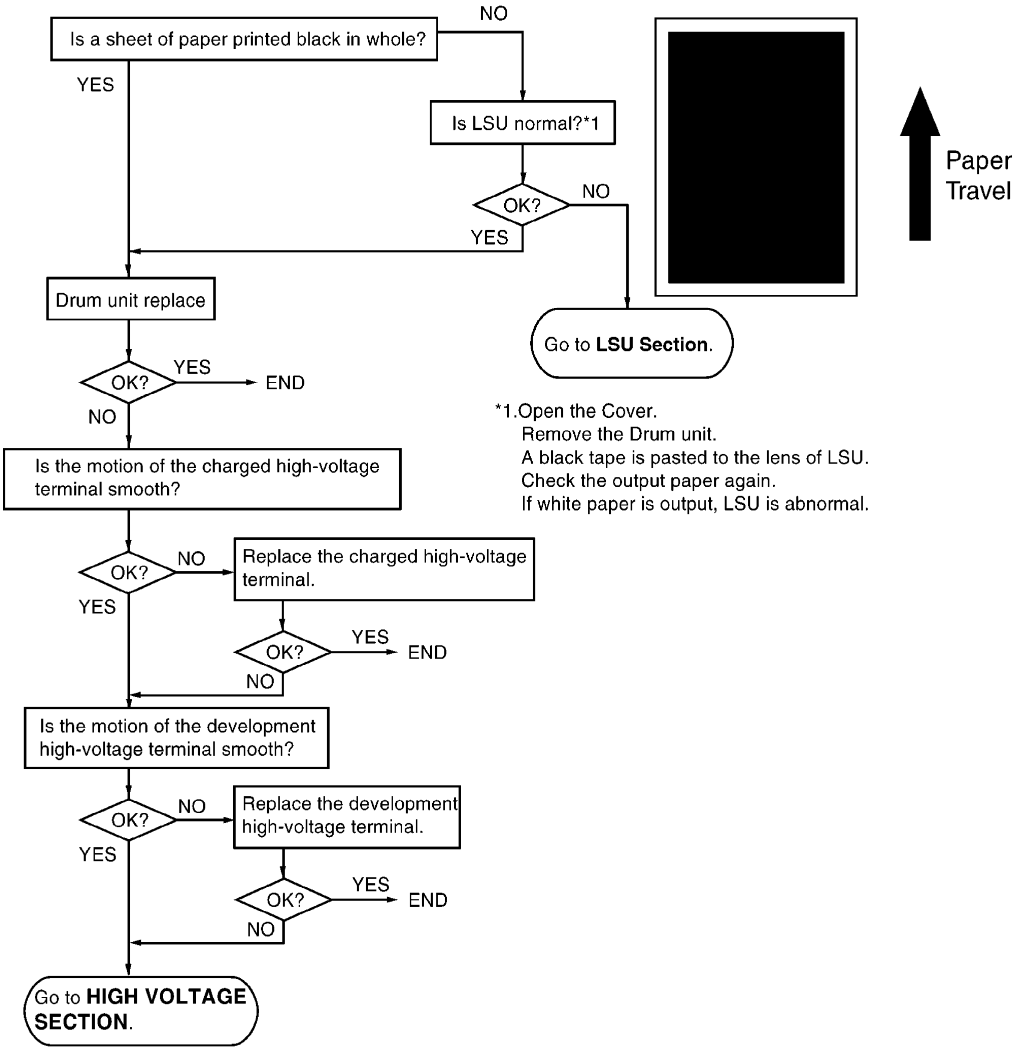
**HIGH VOLTAGE SECTION ()**

### 6.5.7.4. DIRTY OR HALF DARKNESS BACKGROUND


Drum unit replace.
OK?
YES
END
NO
A
Paper Travel
Is paper feed roller dirty?
Pick up, Regist, Eject roller
OK?
NO
Clean paper feed roller.
YES
OK?
YES
END
NO
Is the heat roller or the pressure roller dirty?
OK?
NO
Clean the heat roller or the pressure roller.
YES
OK?
YES
END
NO
Is the charged high-voltage terminal contacting stably?
OK?
NO
Replace the charged high-voltage terminal.
YES
OK?
YES
END
NO
Is the development high-voltage terminal contacting stably?
OK?
NO
Replace the development high-voltage terminal.
YES
OK?
YES
END
NO
Go to HIGH VOLTAGE SECTION.

**CROSS REFERENCE:**
HIGH VOLTAGE SECTION **()**

### 6.5.7.5. BLACK PRINT


NO
Is a sheet of paper printed black in whole?
YES
Is LSU normal?*1
OK?
NO
YES
Paper
Travel
Go to **LSU Section**.
Drum unit replace
OK?
YES
END
NO
Is the motion of the charged high-voltage terminal smooth?
OK?
NO
Replace the charged high-voltage terminal.
YES
OK?
YES
END
NO
Is the motion of the development high-voltage terminal smooth?
OK?
NO
Replace the development high-voltage terminal.
YES
OK?
YES
END
NO
Go to **HIGH VOLTAGE SECTION**.

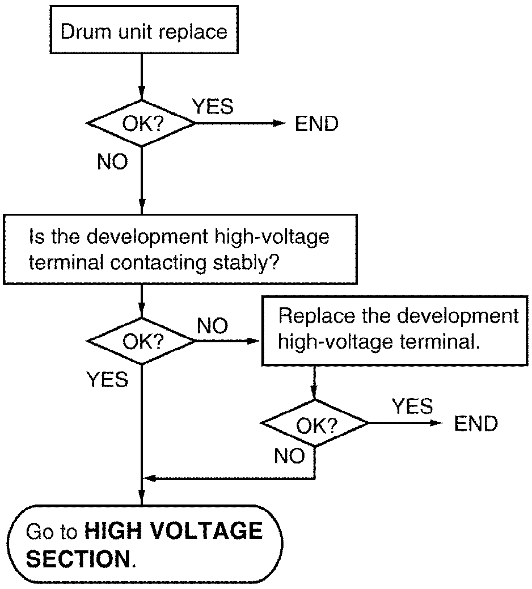
*1.Open the Cover.
Remove the Drum unit.
A black tape is pasted to the lens of LSU.
Check the output paper again.
If white paper is output, LSU is abnormal.

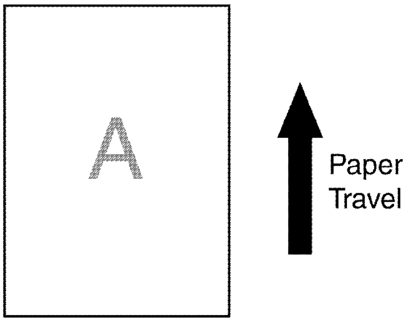
**CROSS REFERENCE:**

**HIGH VOLTAGE SECTION ()**

**LSU SECTION ()**

### 6.5.7.6. LIGHT PRINT

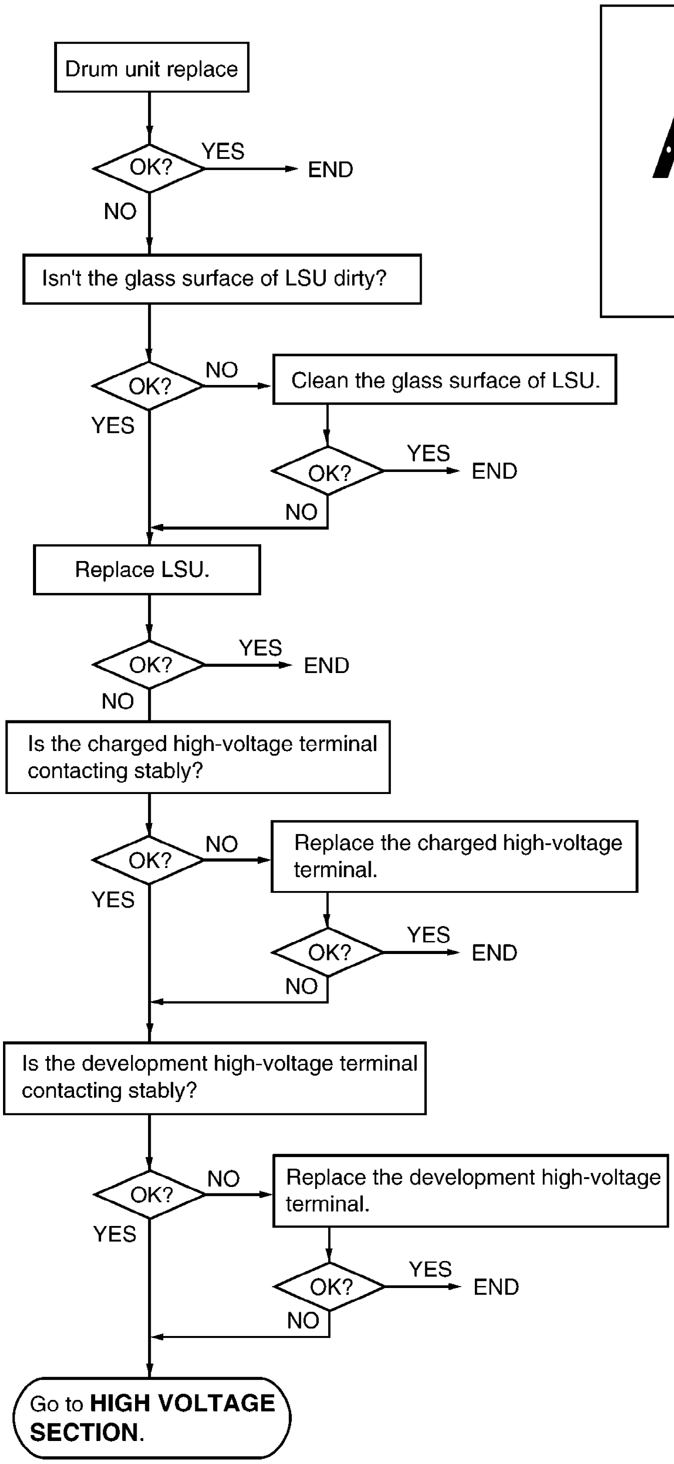

Drum unit replace
OK?
YES
END
NO
Is the development high-voltage terminal contacting stably?
OK?
NO
Replace the development high-voltage terminal.
YES
OK?
YES
END
NO
Go to HIGH VOLTAGE SECTION.

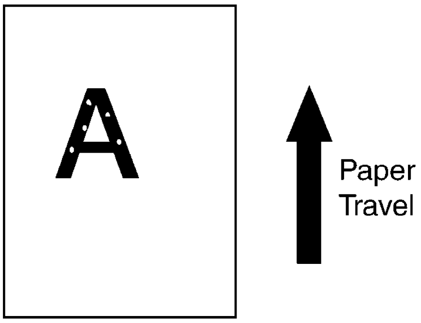

A
Paper Travel

**CROSS REFERENCE:**

**HIGH VOLTAGE SECTION ()**

### 6.5.7.7. BLACK DENSITY IS LIGHT OR UNEVEN.

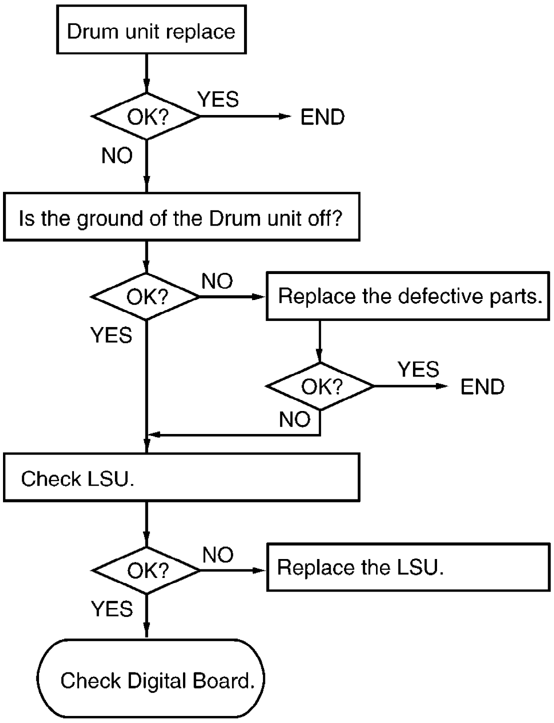

Drum unit replace
OK?
YES
END
NO
Isn't the glass surface of LSU dirty?
OK?
NO
Clean the glass surface of LSU.
YES
OK?
YES
END
NO
Replace LSU.
OK?
YES
END
NO
Is the charged high-voltage terminal contacting stably?
OK?
NO
Replace the charged high-voltage terminal.
YES
OK?
YES
END
NO
Is the development high-voltage terminal contacting stably?
OK?
NO
Replace the development high-voltage terminal.
YES
OK?
YES
END
NO
Go to HIGH VOLTAGE SECTION.

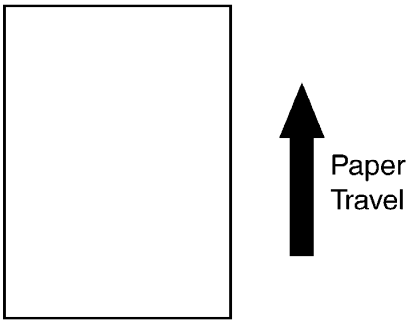

A
Paper
Travel

**CROSS REFERENCE:**

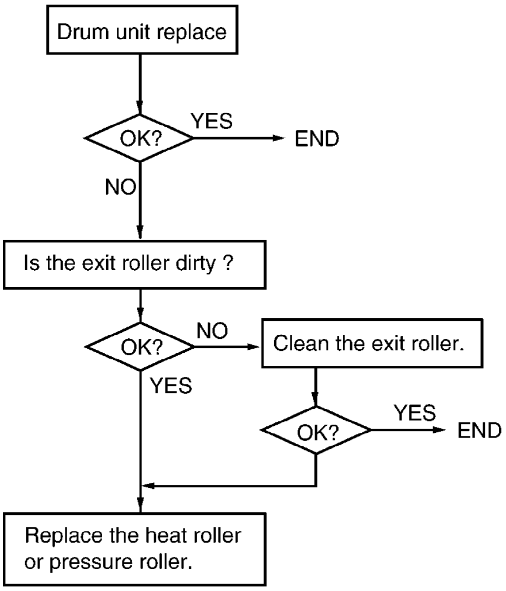
**HIGH VOLTAGE SECTION ()**

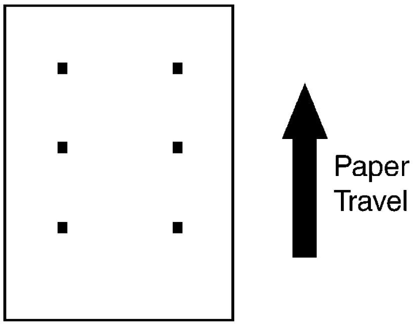
### 6.5.7.8. BLANK PRINT

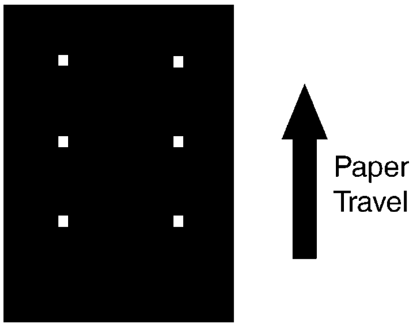

Drum unit replace
OK?
YES
END
NO
Is the ground of the Drum unit off?
OK?
NO
Replace the defective parts.
YES
OK?
YES
END
NO
Check LSU.
OK?
NO
Replace the LSU.
YES
Check Digital Board.


Paper
Travel

### 6.5.7.9. BLACK OR WHITE POINT

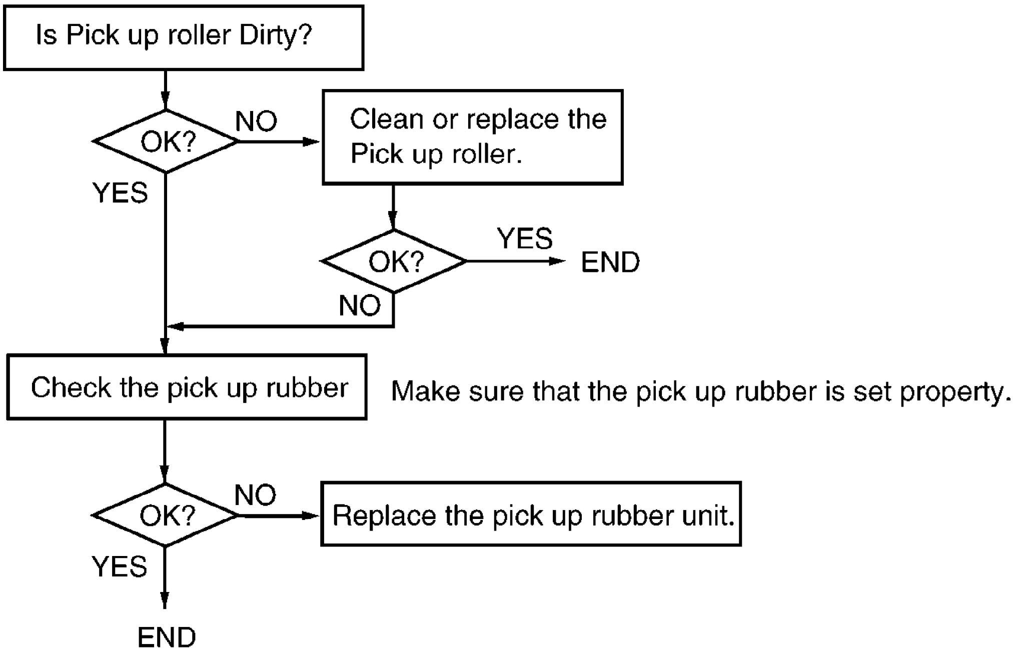

Drum unit replace
OK?
YES
END
NO
Is the exit roller dirty ?
OK?
NO
Clean the exit roller.
YES
OK?
YES
END
Replace the heat roller
or pressure roller.


Paper
Travel

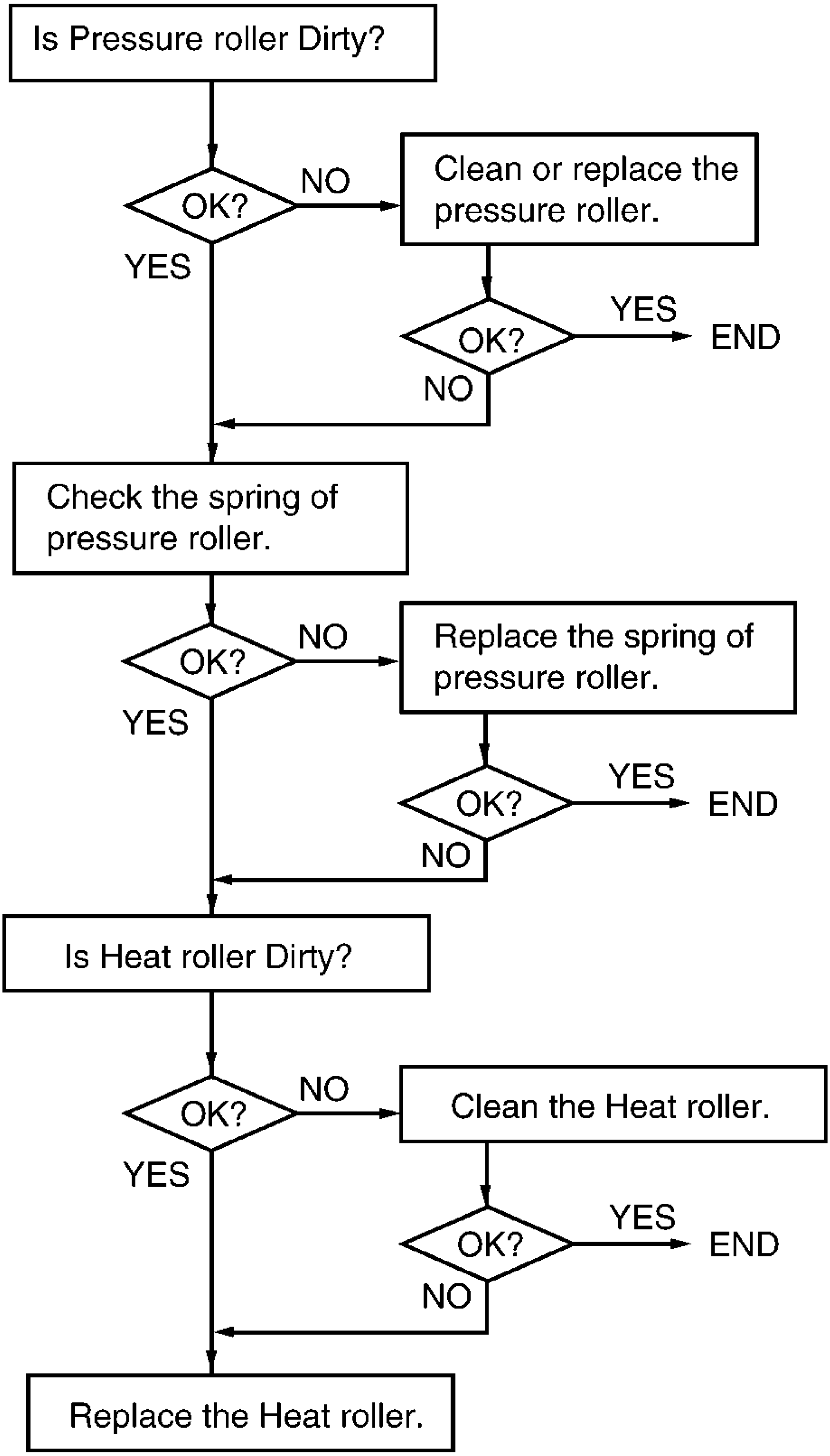

Paper
Travel

## 6.5.8. RECORDING PAPER FEED

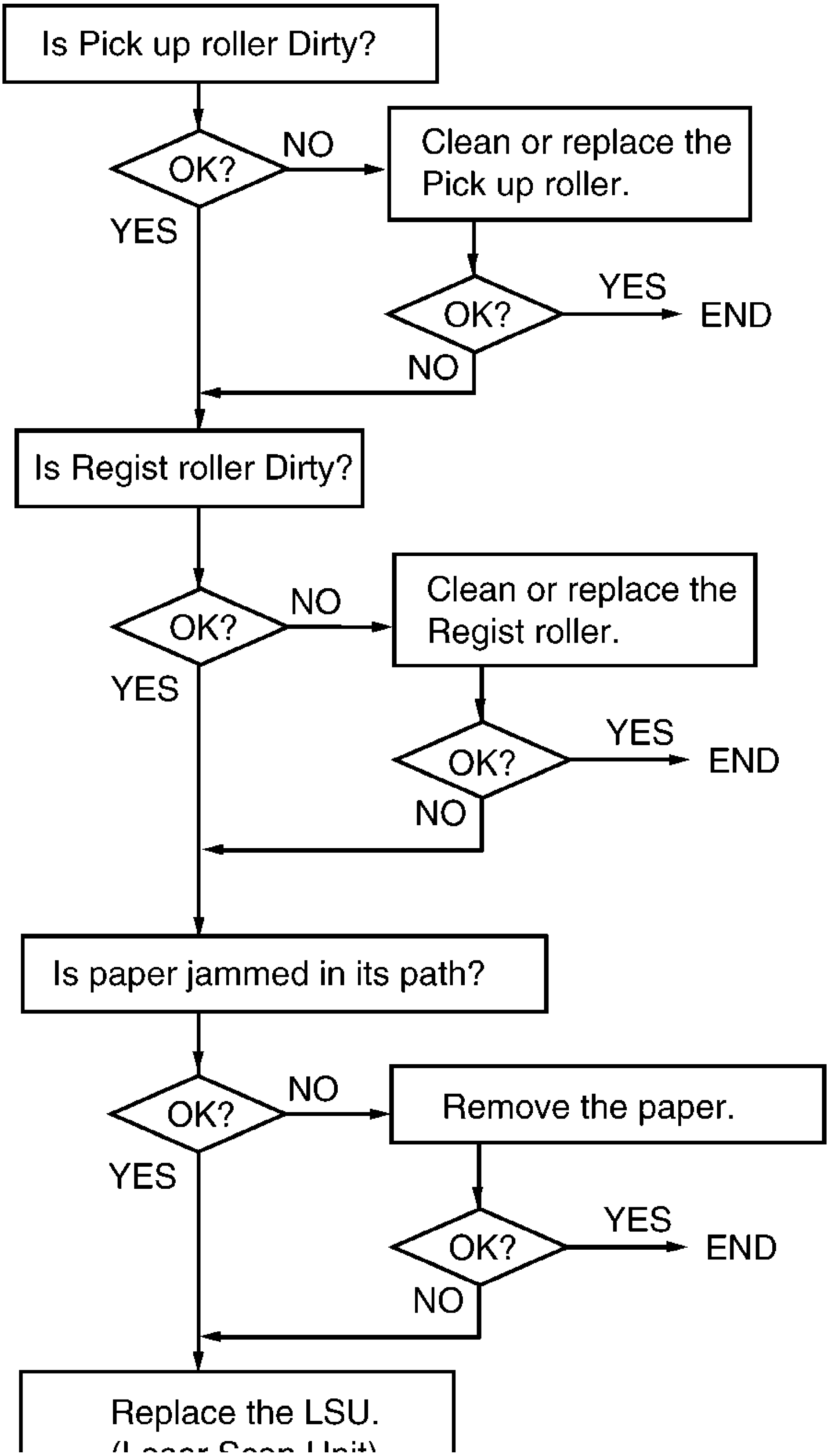
### 6.5.8.1. MULTIPLE FEED


Is Pick up roller Dirty?
OK?
NO
YES
Clean or replace the Pick up roller.
OK?
YES
END
NO
Check the pick up rubber
Make sure that the pick up rubber is set property.
OK?
NO
Replace the pick up rubber unit.
YES
END

### 6.5.8.2. THE RECORDING PAPER IS WAVED OR WRINKLED

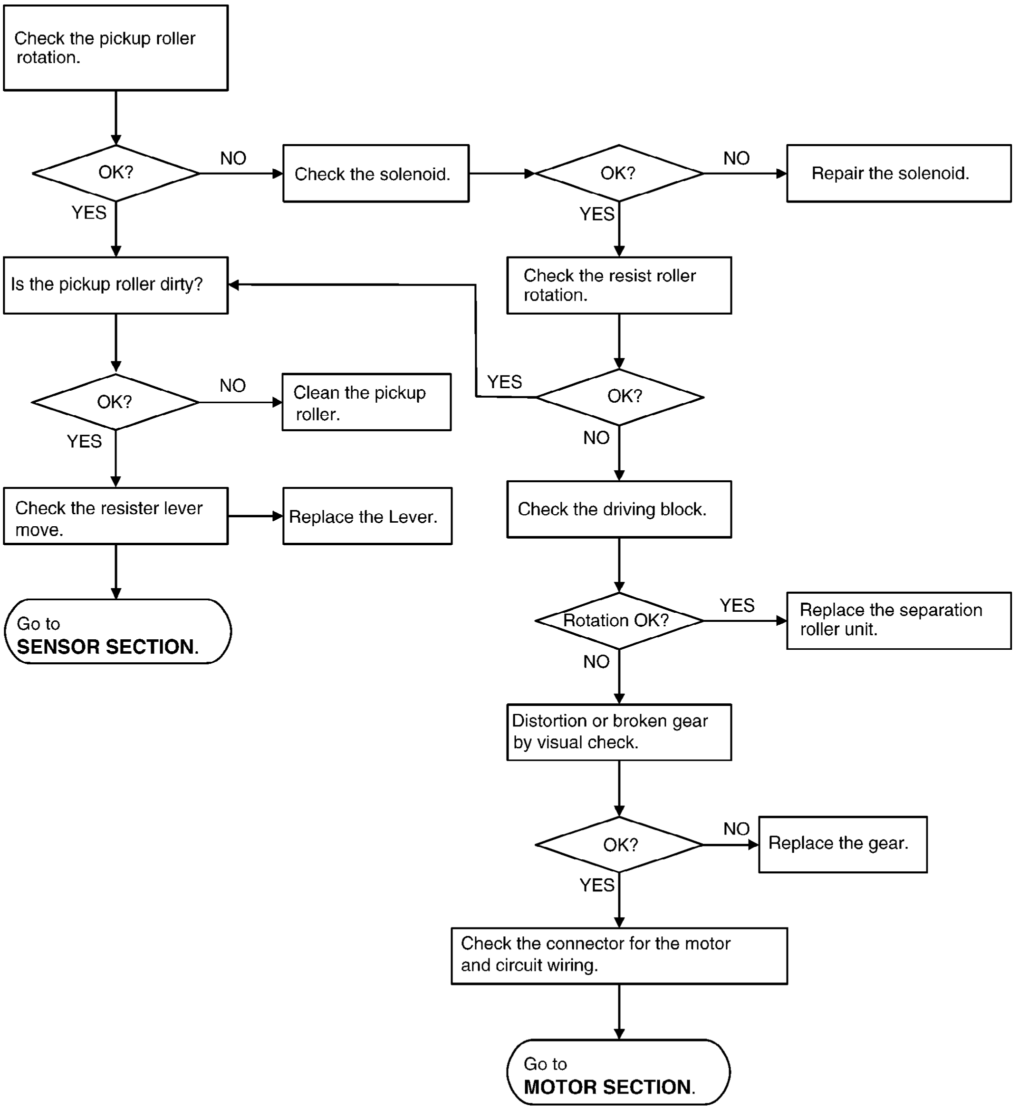

Is Pressure roller Dirty?
OK?
NO
Clean or replace the pressure roller.
YES
OK?
YES
END
NO
Check the spring of pressure roller.
OK?
NO
Replace the spring of pressure roller.
YES
OK?
YES
END
NO
Is Heat roller Dirty?
OK?
NO
Clean the Heat roller.
YES
OK?
YES
END
NO
Replace the Heat roller.

#### 6.5.8.3. SKEW


Is Pick up roller Dirty?
OK?
NO
YES
Clean or replace the Pick up roller.
OK?
YES
END
NO
Is Regist roller Dirty?
OK?
NO
YES
Clean or replace the Regist roller.
OK?
YES
END
NO
Is paper jammed in its path?
OK?
NO
YES
Remove the paper.
OK?
YES
END
NO
Replace the LSU.

(Laser Scan Unit)

### 6.5.8.4. THE RECORDING PAPER DOES NOT FEED

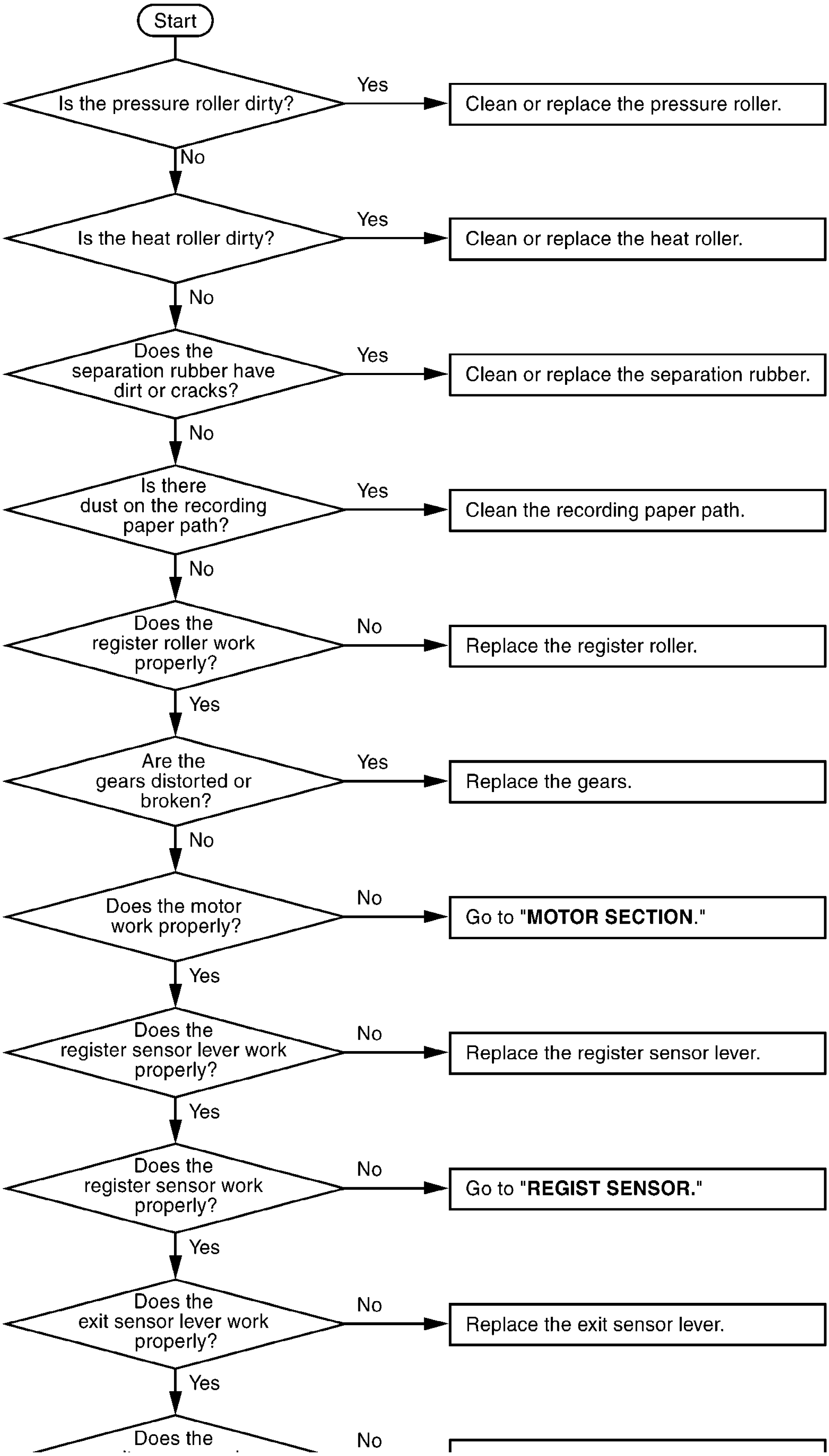

Check the pickup roller rotation.
OK?
NO
YES
Check the solenoid.
OK?
NO
YES
Repair the solenoid.
Is the pickup roller dirty?
Check the resist roller rotation.
OK?
NO
YES
Clean the pickup roller.
YES
OK?
NO
Check the resister lever move.
Replace the Lever.
Check the driving block.
Go to
SENSOR SECTION.
Rotation OK?
YES
NO
Replace the separation roller unit.
Distortion or broken gear by visual check.
OK?
NO
YES
Replace the gear.
Check the connector for the motor and circuit wiring.
Go to
MOTOR SECTION.

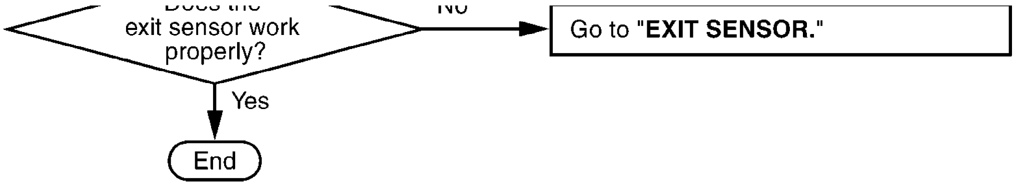
**CROSS REFERENCE:**

**SENSOR SECTION ()**

**MOTOR SECTION ()**

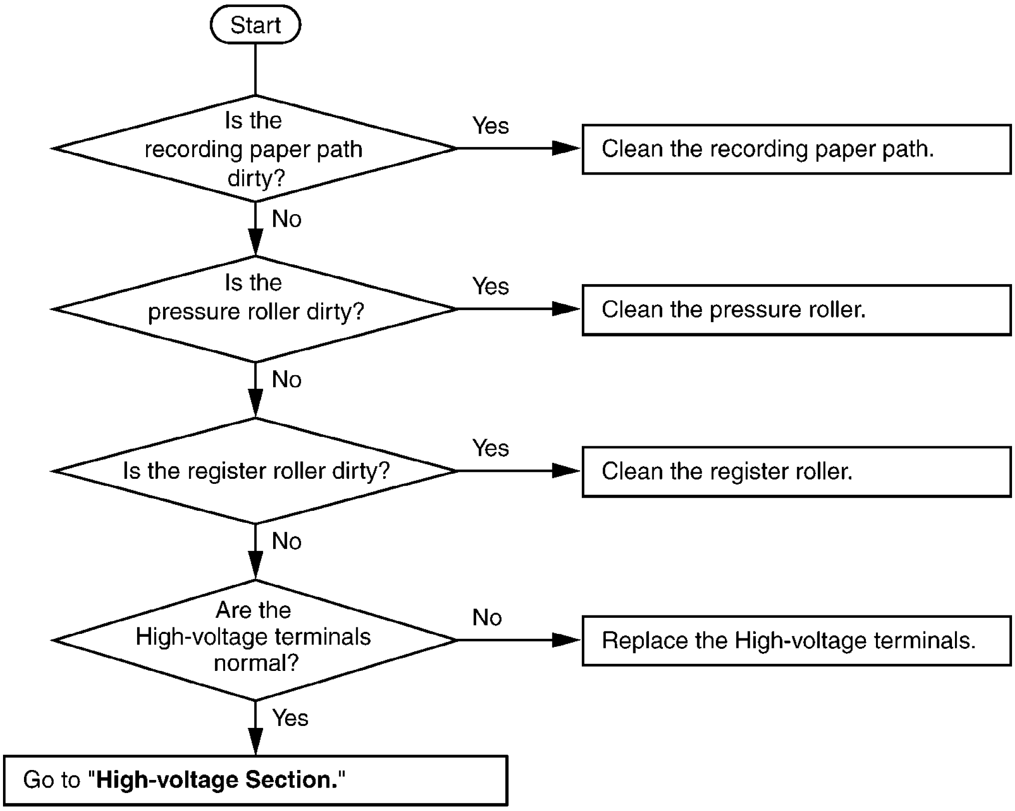
### 6.5.8.5. THE RECORDING PAPER JAM


Start
Is the pressure roller dirty?
Yes
Clean or replace the pressure roller.
No
Is the heat roller dirty?
Yes
Clean or replace the heat roller.
No
Does the separation rubber have dirt or cracks?
Yes
Clean or replace the separation rubber.
No
Is there dust on the recording paper path?
Yes
Clean the recording paper path.
No
Does the register roller work properly?
No
Replace the register roller.
Yes
Are the gears distorted or broken?
Yes
Replace the gears.
No
Does the motor work properly?
No
Go to "**MOTOR SECTION**."
Yes
Does the register sensor lever work properly?
No
Replace the register sensor lever.
Yes
Does the register sensor work properly?
No
Go to "**REGIST SENSOR.**"
Yes
Does the exit sensor lever work properly?
No
Replace the exit sensor lever.
Yes
Does the
No


exit sensor work
properly?
No
Go to "EXIT SENSOR."
Yes
End

**CROSS REFERENCE:**
**PAPER EXIT SENSOR..... “PAPER JAMMED” ()**
**FAN MOTOR SECTION ()**
**REGIST SENSOR.....”FAILED PICK UP” ()**

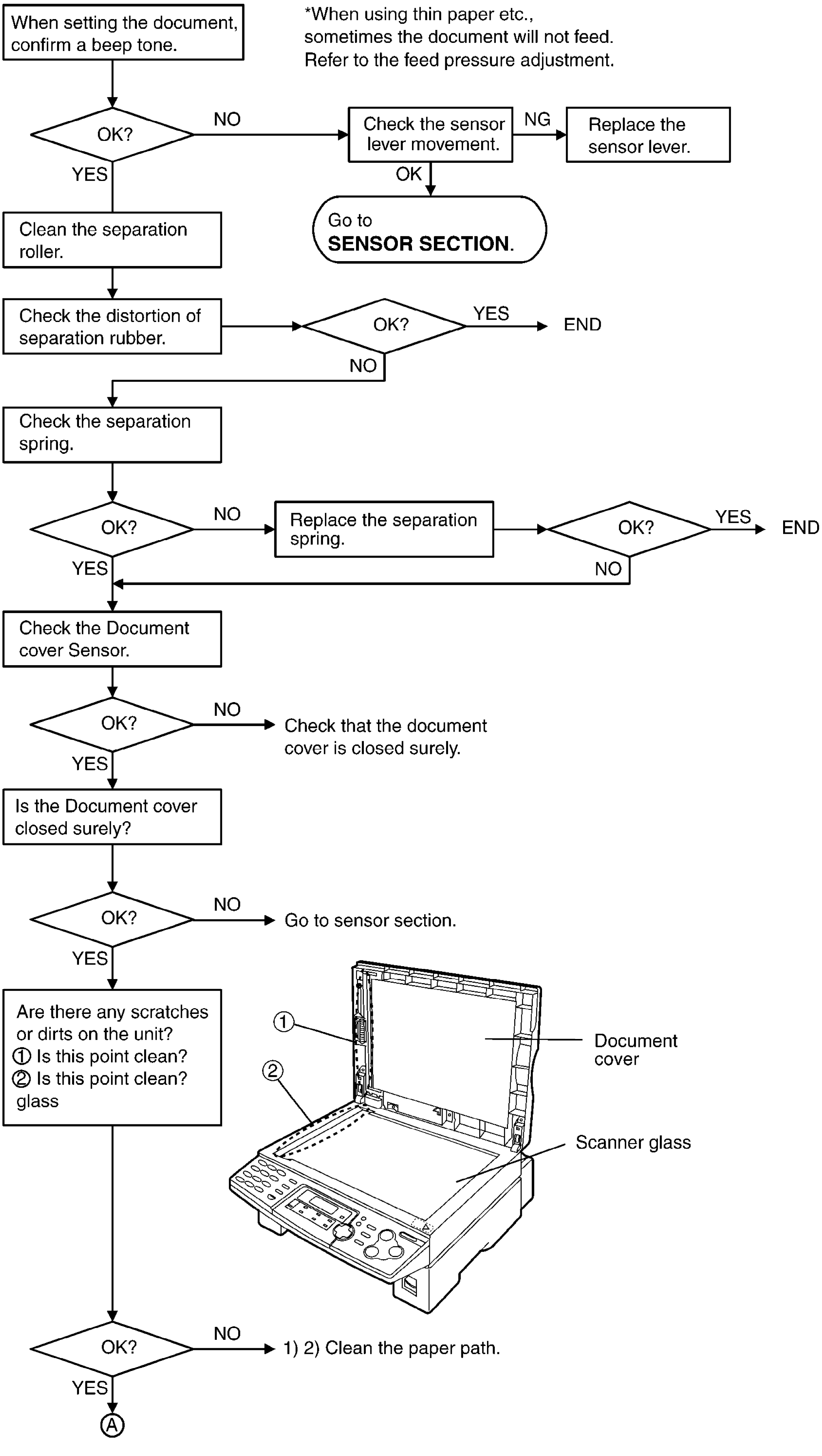
### 6.5.8.6. BACK SIDE OF THE RECORDING PAPER IS DIRTY


Start
Is the
recording paper path
dirty?
Yes
Clean the recording paper path.
No
Is the
pressure roller dirty?
Yes
Clean the pressure roller.
No
Is the register roller dirty?
Yes
Clean the register roller.
No
Are the
High-voltage terminals
normal?
No
Replace the High-voltage terminals.
Yes
Go to "High-voltage Section."

**CROSS REFERENCE:**
**HIGH VOLTAGE SECTION ()**

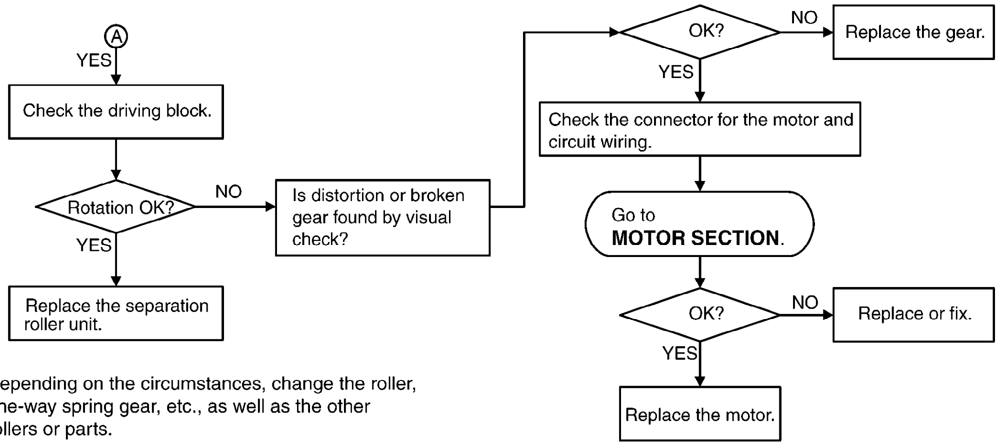
## 6.5.9. ADF (Auto document feed) SECTION

### 6.5.9.1. NO DOCUMENT FEED,DOCUMENT JAM and MULTIPLE DOCUMENT FEED.


When setting the document, confirm a beep tone.
*When using thin paper etc., sometimes the document will not feed. Refer to the feed pressure adjustment.
OK?
NO
Check the sensor lever movement.
NG
Replace the sensor lever.
OK
Go to SENSOR SECTION.
YES
Clean the separation roller.
Check the distortion of separation rubber.
OK?
YES
END
NO
Check the separation spring.
OK?
NO
Replace the separation spring.
OK?
YES
END
NO
YES
Check the Document cover Sensor.
OK?
NO
Check that the document cover is closed surely.
YES
Is the Document cover closed surely?
OK?
NO
Go to sensor section.
YES
Are there any scratches or dirts on the unit?
① Is this point clean?
② Is this point clean? glass
①
②
Document cover
Scanner glass
OK?
NO
1) 2) Clean the paper path.
YES
Ⓐ

**CROSS REFERENCE:**

**SENSOR SECTION ()**


A
YES
Check the driving block.
Rotation OK?
NO
Is distortion or broken gear found by visual check?
YES
Replace the separation roller unit.
OK?
NO
Replace the gear.
YES
Check the connector for the motor and circuit wiring.
Go to
MOTOR SECTION.
OK?
NO
Replace or fix.
YES
Replace the motor.

Depending on the circumstances, change the roller, one-way spring gear, etc., as well as the other rollers or parts.

When confirming if the characters are extended or distorted on,if the feed problem occurs,use this test chart. (Fig b)

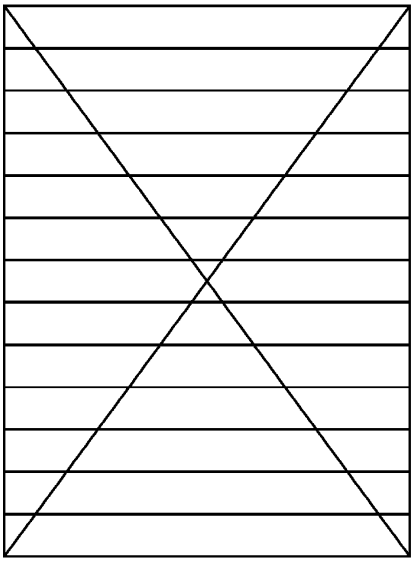


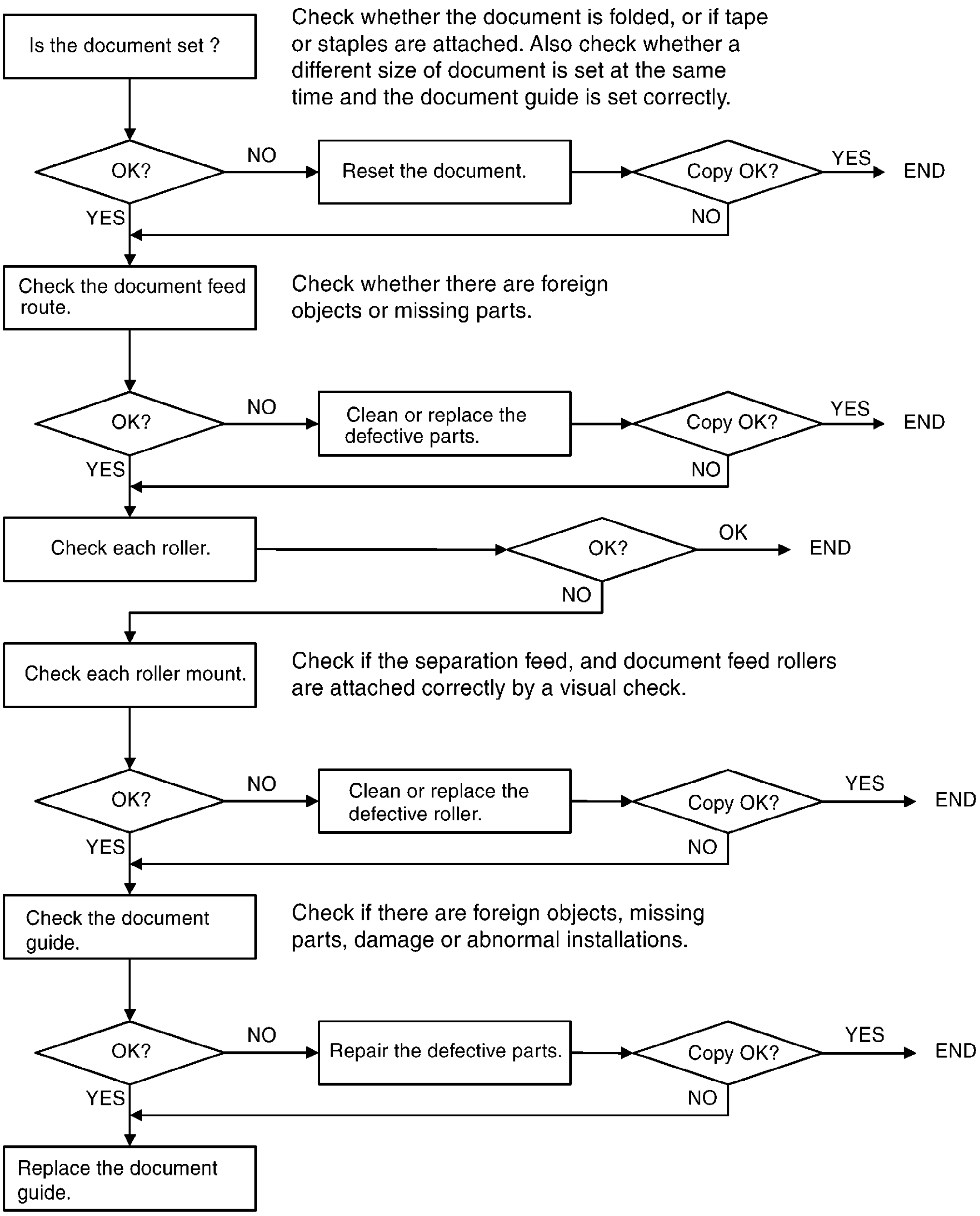
Fig. b

**CROSS REFERENCE:**

**MOTOR SECTION ()**

### 6.5.9.2. SKEW

### 6.5.9.2.1. ADF


Is the document set ?
OK?
NO
Reset the document.
Copy OK?
YES
END
NO
YES
Check the document feed route.
OK?
NO
Clean or replace the defective parts.
Copy OK?
YES
END
NO
YES
Check each roller.
OK?
OK
END
NO
Check each roller mount.
OK?
NO
Clean or replace the defective roller.
Copy OK?
YES
END
NO
YES
Check the document guide.
OK?
NO
Repair the defective parts.
Copy OK?
YES
END
NO
YES
Replace the document guide.

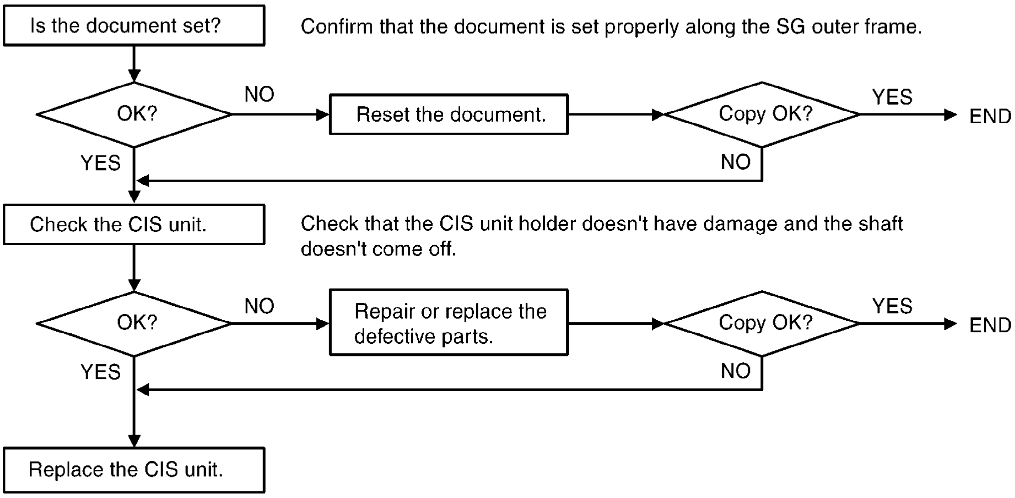
Check whether the document is folded, or if tape or staples are attached. Also check whether a different size of document is set at the same time and the document guide is set correctly.

Check whether there are foreign objects or missing parts.

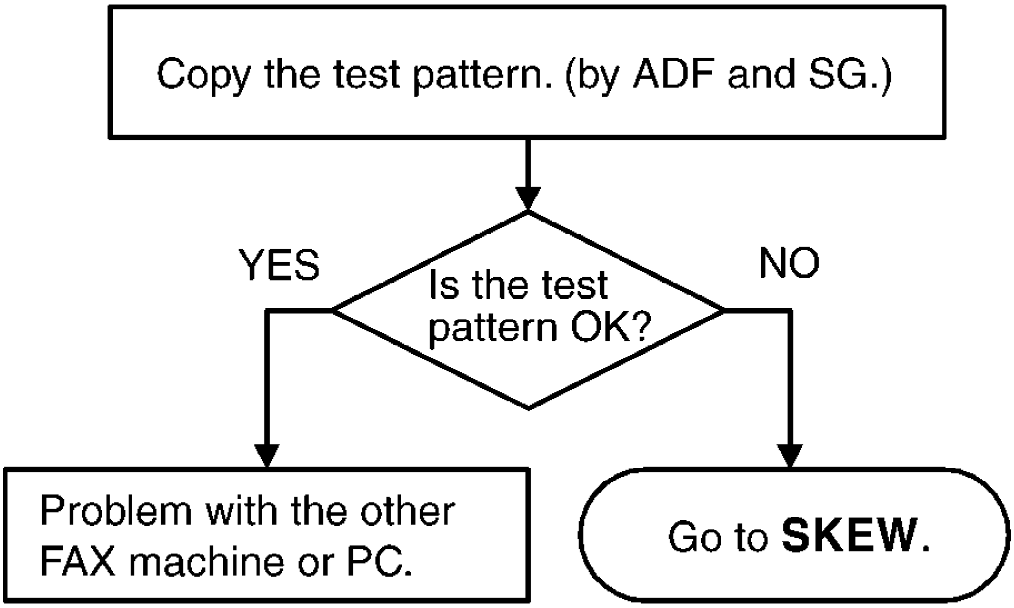
Check if the separation feed, and document feed rollers are attached correctly by a visual check.

Check if there are foreign objects, missing parts, damage or abnormal installations.

### 6.5.9.2.2. SCANNER GLASS

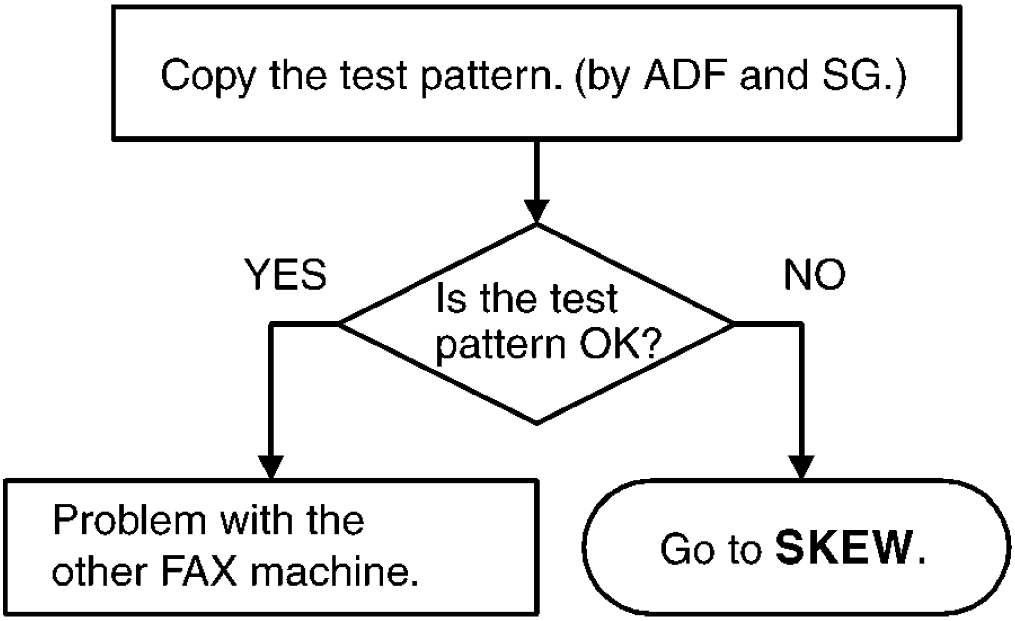

Is the document set?
Confirm that the document is set properly along the SG outer frame.
OK?
NO
Reset the document.
Copy OK?
YES
END
YES
NO
Check the CIS unit.
Check that the CIS unit holder doesn't have damage and the shaft doesn't come off.
OK?
NO
Repair or replace the defective parts.
Copy OK?
YES
END
YES
NO
Replace the CIS unit.

### 6.5.9.3. THE SENT FAX DATA IS SKEWED


Copy the test pattern. (by ADF and SG.)
YES
Is the test pattern OK?
NO
Problem with the other FAX machine or PC.
Go to SKEW.

**CROSS REFERENCE:**
**SKEW ()**

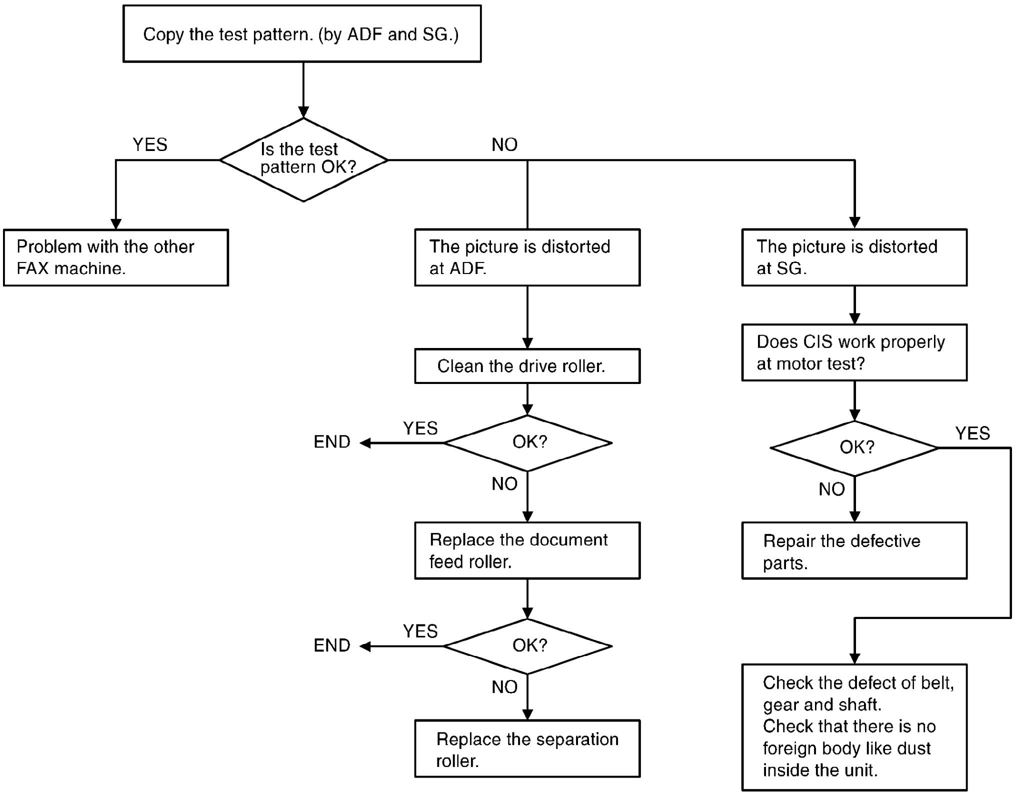
### 6.5.9.4. THE RECEIVED FAX DATA IS SKEWED


Copy the test pattern. (by ADF and SG.)
Is the test pattern OK?
YES
NO
Problem with the other FAX machine.
Go to SKEW.

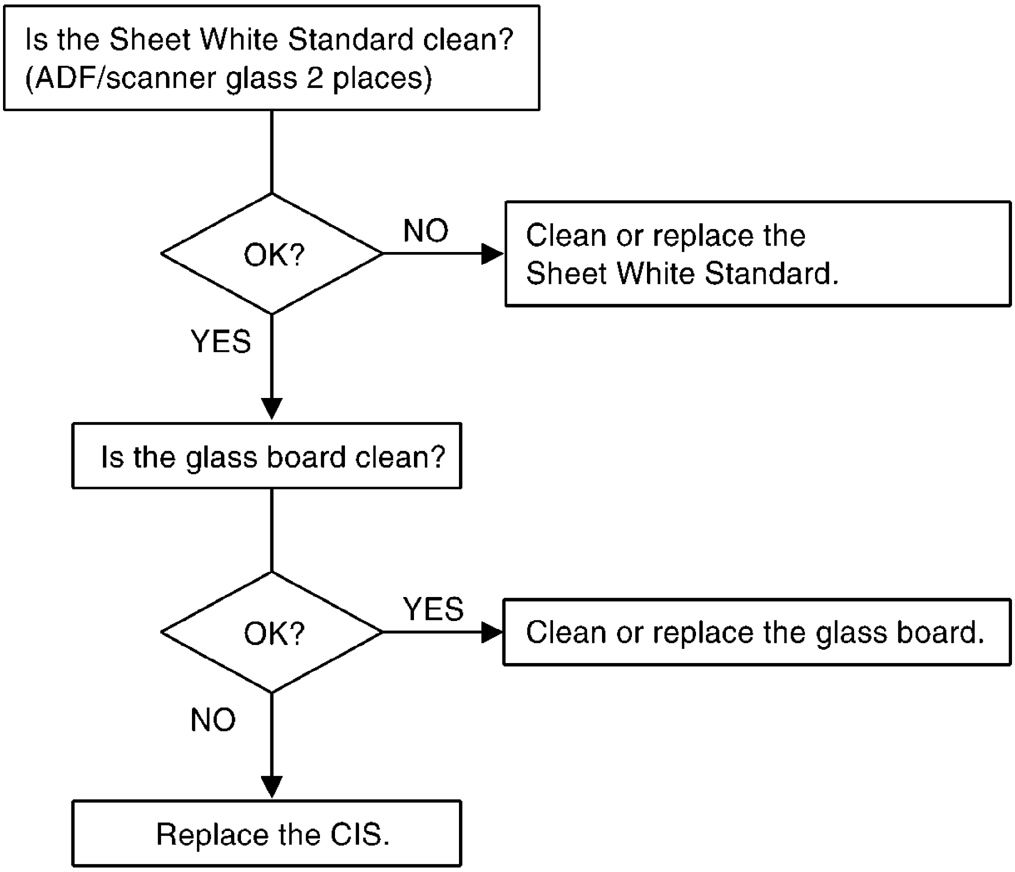
**CROSS REFERENCE:**

**SKEW ()**

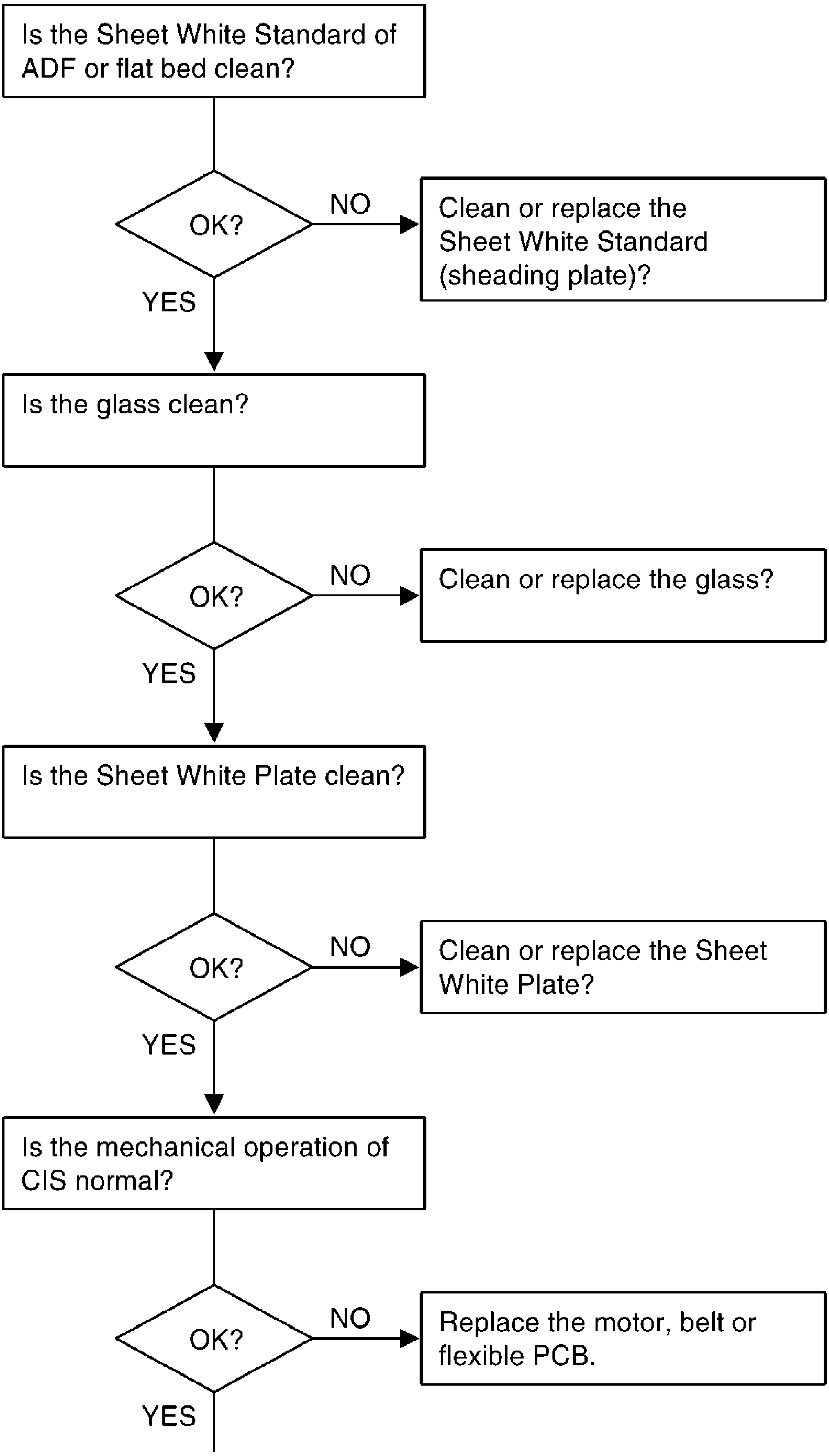
### 6.5.9.5. THE RECEIVED OR COPIED DATA IS EXPANDED

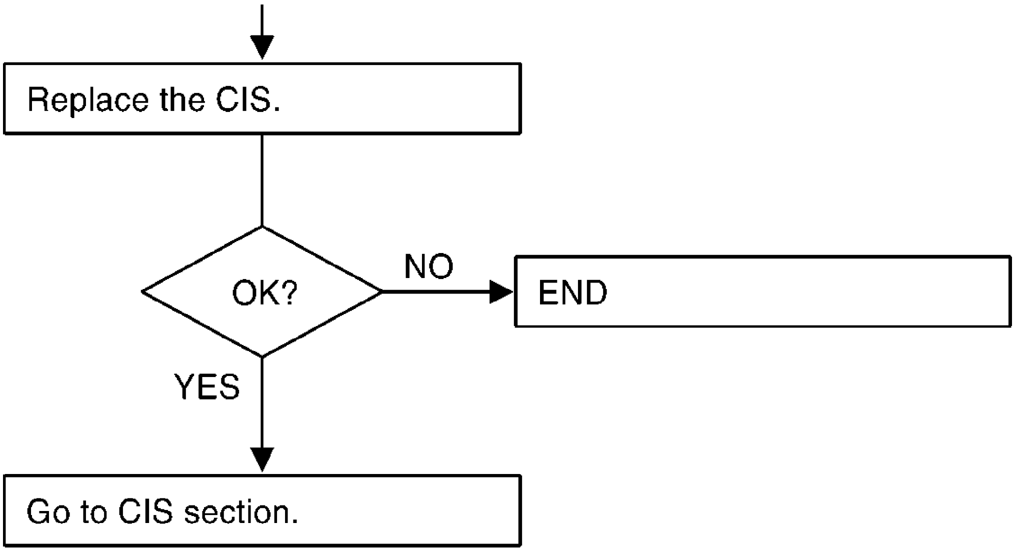

Copy the test pattern. (by ADF and SG.)
Is the test pattern OK?
YES
NO
Problem with the other FAX machine.
The picture is distorted at ADF.
The picture is distorted at SG.
Clean the drive roller.
Does CIS work properly at motor test?
END
YES
OK?
NO
Replace the document feed roller.
OK?
YES
NO
Repair the defective parts.
END
YES
OK?
NO
Replace the separation roller.
Check the defect of belt, gear and shaft. Check that there is no foreign body like dust inside the unit.

### 6.5.9.6. BLACK OR WHITE VERTICAL LINE IS COPIED


Is the Sheet White Standard clean?
(ADF/scanner glass 2 places)
OK?
NO
Clean or replace the Sheet White Standard.
YES
Is the glass board clean?
OK?
YES
Clean or replace the glass board.
NO
Replace the CIS.

### 6.5.9.7. AN ABNORMAL IMAGE IS COPIED


Is the Sheet White Standard of ADF or flat bed clean?
OK?
NO
Clean or replace the Sheet White Standard (sheading plate)?
YES
Is the glass clean?
OK?
NO
Clean or replace the glass?
YES
Is the Sheet White Plate clean?
OK?
NO
Clean or replace the Sheet White Plate?
YES
Is the mechanical operation of CIS normal?
OK?
NO
Replace the motor, belt or flexible PCB.
YES



**CROSS REFERENCE:**
CIS (Contact Image Sensor) SECTION ()

## 6.5.10. COMMUNICATION SECTION

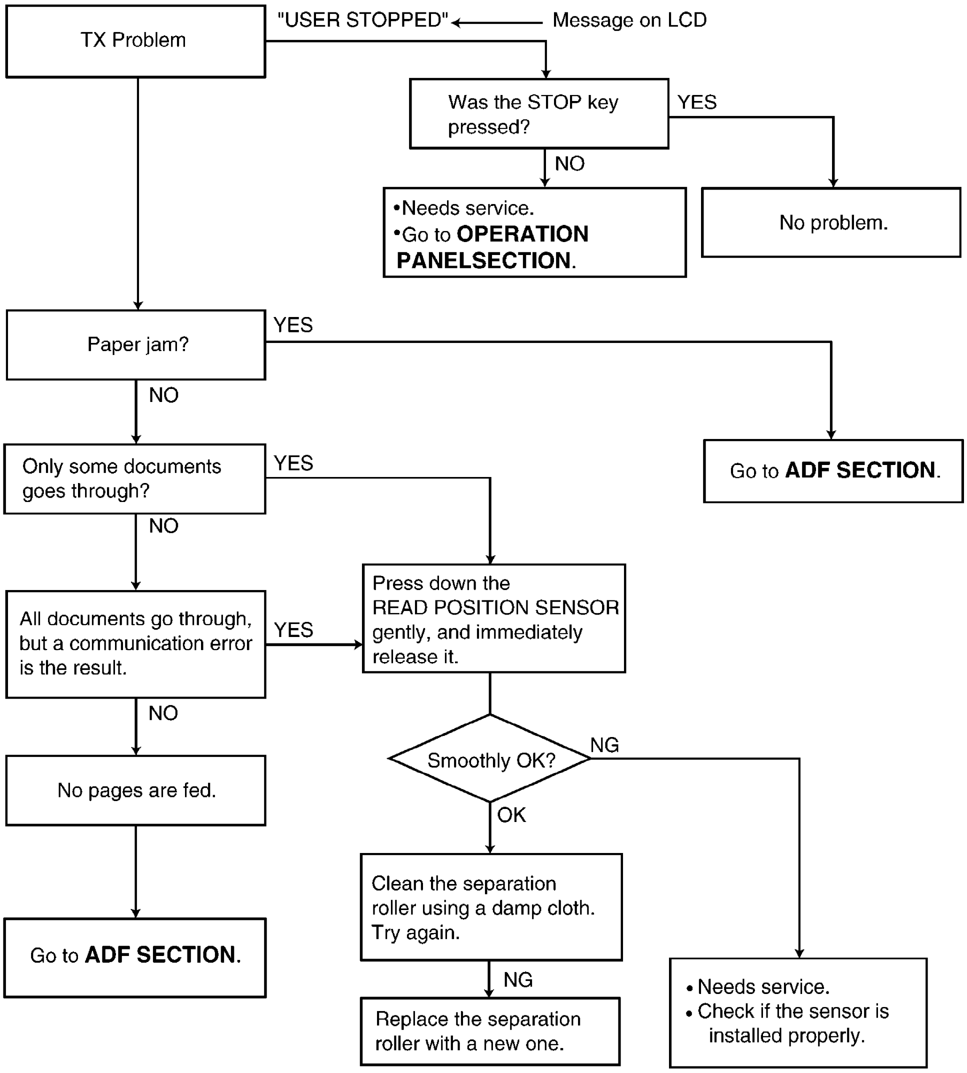
Find the problem in the table shown below, and refer to the corresponding troubleshooting procedure in DEFECTIVE FACSIMILE SECTION ().

| No. | Symptom | Content | Possible cause |
|---|---|---|---|
| 1 | The paper dose not feed properly when faxing.<br>(Copying is also not possible.) | Troubleshooting | Problem with the feeding mechanism.<br>(Refer to TRANSMIT PROBLEM ().) |
| 2 | The fax transmits successfully one time and fails another. (Copying is also possible.) | Troubleshooting | Problem with the service line or with the receiver's fax.<br>(Refer to SOMETIME THERE IS A TRANSMIT PROBLEM ().) |
| 3 | The fax receives successfully one time and fails another.<br>(Copying is also possible.) | Troubleshooting | Problem with the service line or with the transmitter's fax.<br>(Refer to RECEIVE PROBLEM ().) |

| No. | Symptom | Content | Possible cause |
|---|---|---|---|
| 4 | The fax completely fails to transmit or receive.<br>(Copying is also possible.) | Troubleshooting | Problem with the electric circuit.<br>(Refer to THE UNIT CAN COPY, BUT CANNOT TRANSMIT/RECEIVE ().) |
| 5 | The fax fails either to transmit or receive when making a long distance or an international call.<br>(Copying is also possible.) | Detailed description of the possible causes (Similar to troubleshooting items No.2 and No.3.) | Problem with the service line. |
| 6 | The fax image is poor when transmitting or receiving during a long distance or international call. | | |
| 7 | No.1-No.5 | The troubleshooting procedure for each error code will be printed on the communication result report. | (Refer to HOW TO OUTPUT THE JOURNAL REPORT ().) |

### 6.5.10.1. DEFECTIVE FACSIMILE SECTION

#### 6.5.10.1.1. TRANSMIT PROBLEM


TX Problem
"USER STOPPED"
Message on LCD
Was the STOP key pressed?
YES
NO
•Needs service.
•Go to **OPERATION PANELSECTION**.
No problem.
Paper jam?
YES
NO
Go to **ADF SECTION**.
Only some documents goes through?
YES
NO
Press down the READ POSITION SENSOR gently, and immediately release it.
All documents go through, but a communication error is the result.
YES
NO
Smoothly OK?
NG
OK
No pages are fed.
Clean the separation roller using a damp cloth. Try again.
NG
Go to **ADF SECTION**.
Replace the separation roller with a new one.
• Needs service.
• Check if the sensor is installed properly.

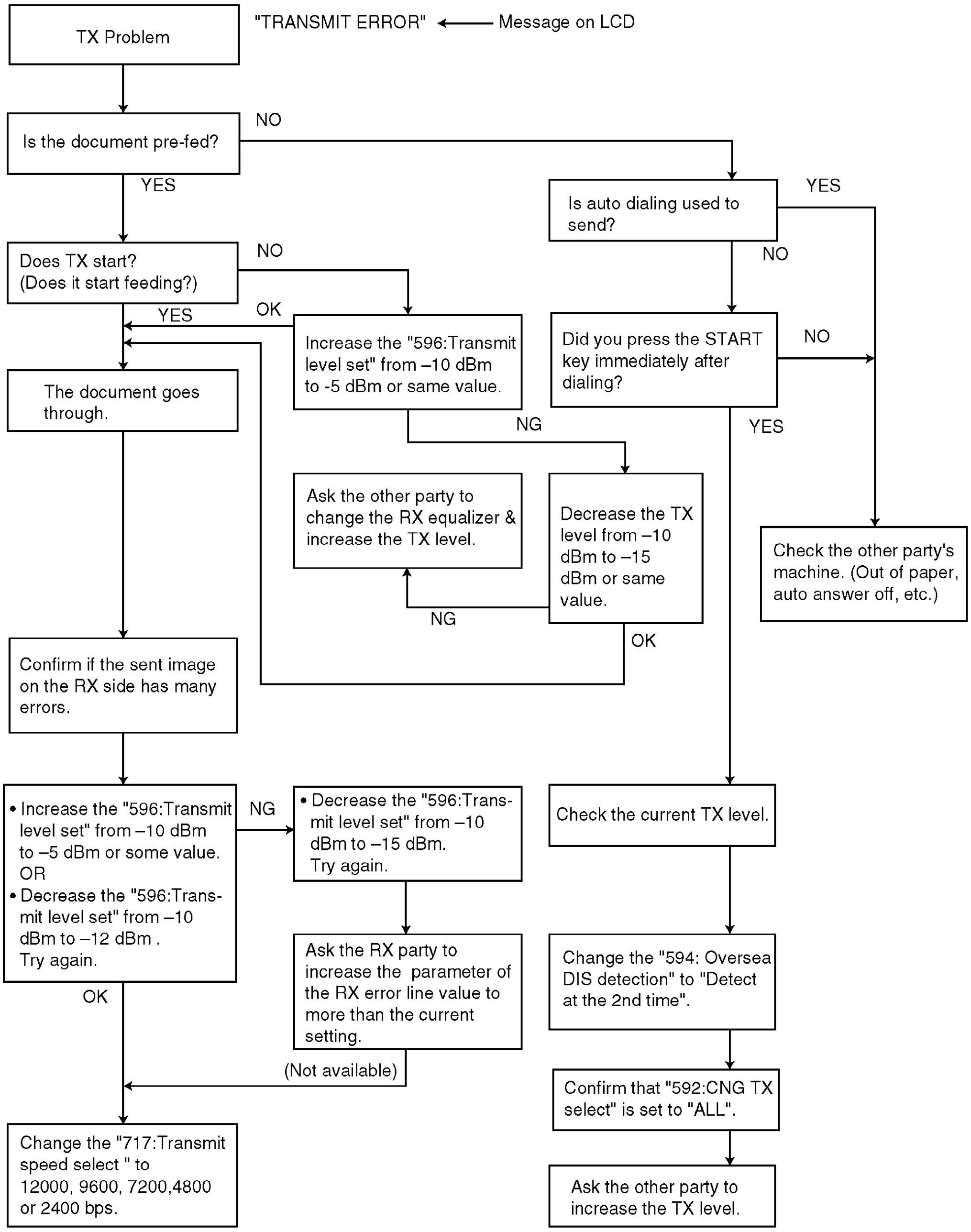
**CROSS REFERENCE:**

**WHITE PLATE AND SCANNER GLASS ()**

**ADF (Auto document feed) SECTION ()**

**OPERATION PANEL SECTION ()**

### 6.5.10.1.2. SOMETIME THERE IS A TRANSMIT PROBLEM


TX Problem
"TRANSMIT ERROR"
Message on LCD
Is the document pre-fed?
NO
YES
Is auto dialing used to send?
YES
NO
Does TX start? (Does it start feeding?)
NO
YES
OK
Increase the "596:Transmit level set" from –10 dBm to -5 dBm or same value.
Did you press the START key immediately after dialing?
NO
YES
The document goes through.
NG
Ask the other party to change the RX equalizer & increase the TX level.
Decrease the TX level from –10 dBm to –15 dBm or same value.
Check the other party's machine. (Out of paper, auto answer off, etc.)
NG
OK
Confirm if the sent image on the RX side has many errors.
• Increase the "596:Transmit level set" from –10 dBm to –5 dBm or some value.
OR
• Decrease the "596:Transmit level set" from –10 dBm to –12 dBm .
Try again.
NG
• Decrease the "596:Transmit level set" from –10 dBm to –15 dBm.
Try again.
Check the current TX level.
OK
Ask the RX party to increase the parameter of the RX error line value to more than the current setting.
Change the "594: Oversea DIS detection" to "Detect at the 2nd time".
(Not available)
Confirm that "592:CNG TX select" is set to "ALL".
Change the "717:Transmit speed select " to 12000, 9600, 7200,4800 or 2400 bps.
Ask the other party to increase the TX level.

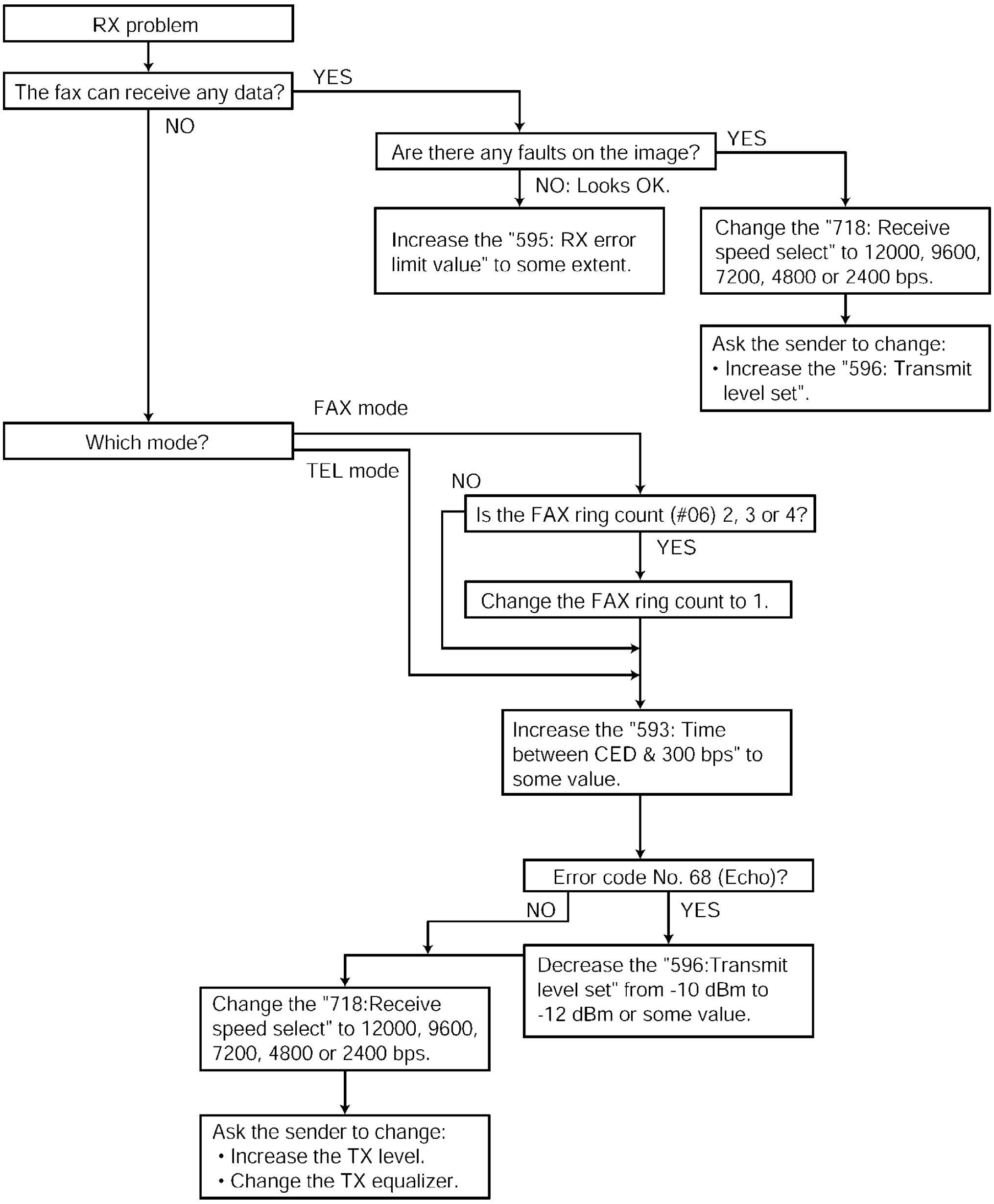
**Note:**

**“596: Transmit level set” represents a service code. Refer to the SERVICE FUNCTION TABLE ().**

### 6.5.10.1.3. RECEIVE PROBLEM

**Confirm the following before starting troubleshooting.**

**- Is the recording paper installed properly? Refer to the next page.**


RX problem
The fax can receive any data?
YES
NO
Are there any faults on the image?
YES
NO: Looks OK.
Increase the "595: RX error limit value" to some extent.
Change the "718: Receive speed select" to 12000, 9600, 7200, 4800 or 2400 bps.
Ask the sender to change:
• Increase the "596: Transmit level set".
FAX mode
Which mode?
TEL mode
NO
Is the FAX ring count (#06) 2, 3 or 4?
YES
Change the FAX ring count to 1.
Increase the "593: Time between CED & 300 bps" to some value.
Error code No. 68 (Echo)?
NO
YES
Decrease the "596:Transmit level set" from -10 dBm to -12 dBm or some value.
Change the "718:Receive speed select" to 12000, 9600, 7200, 4800 or 2400 bps.
Ask the sender to change:
• Increase the TX level.
• Change the TX equalizer.

**Note:**

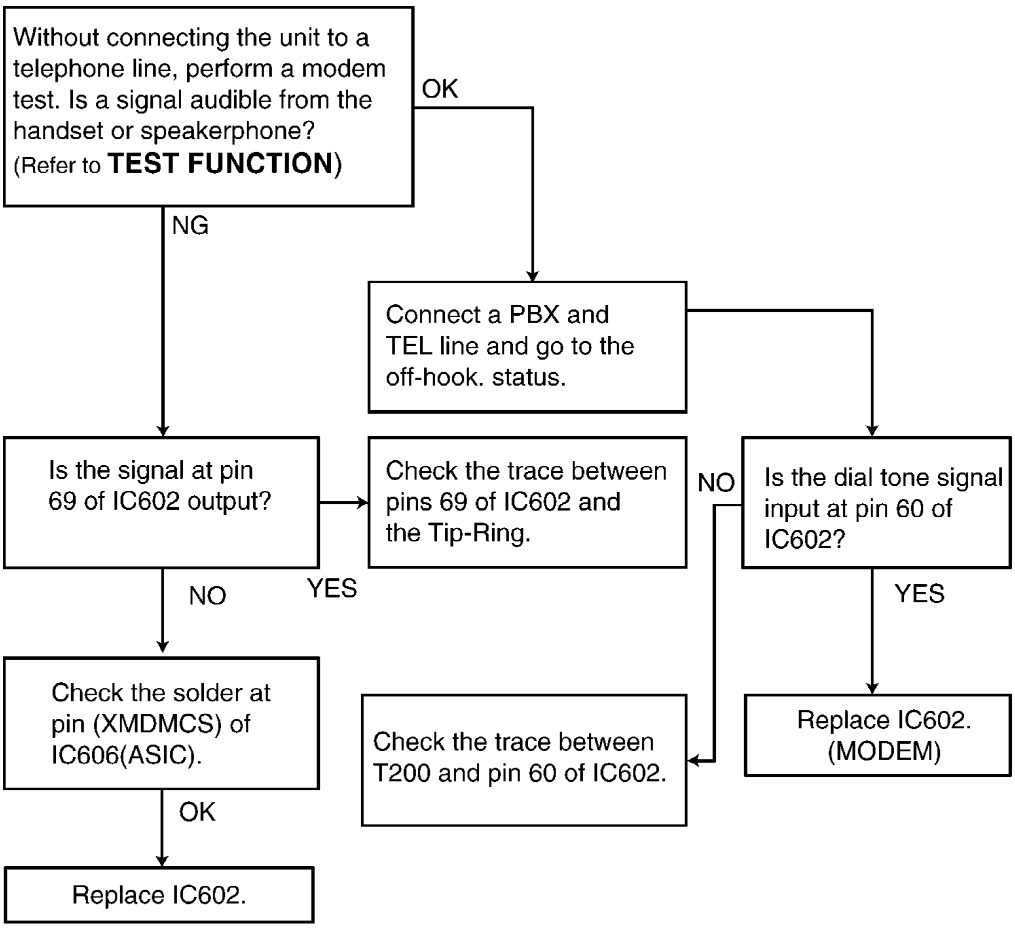
**“596: Transmit level set” represents a service code. Refer to the SERVICE FUNCTION TABLE ().**

**For the receiving problem, we have thought of causes other than in the software. Some causes may be when the fax changes to the memory receiving mode (for example, when out of paper). and the memory becomes full of the unprinted fax data. In this case, [MEMORY FULL] and its main cause (for example, “OUT OF PAPER”) are displayed on the LCD. Accordingly, by solving the main problem, [MEMORY FULL] can be canceled and the receiving problem can solved. The causes of the display errors are shown below.**

**MODEM ERROR**
**CHANGE DRUM**
**CHECK ADF CABLE**
**CHECK DOCUMENT**
**COVER OPEN**
**DATA IN MEMORY**
**CLOSE ADF COVER**
**DIRECTORY FULL**
**FAILED PICK UP**
**FAX IN MEMORY**
**FAX MEMORY FULL**
**LINE IN USE**
**MEMORY FULL**
**MODEM ERROR**
**NO FAX REPLY**
**OUT OF PAPER**
**PAPER JAMMED**
**PC FAIL OR BUSY**
**PLEASE WAIT**
**REDIAL TIME OUT**
**REMOVE DOCUMENT**
**TONER EMPTY**
**TONER LOW**
**TRANSMIT ERROR**
**WRONG PAPER**
**CARRIAGE ERROR**

**Please refer to USER RECOVERABLE ERRORS () for the above items.**
**Also, when it actually becomes a hardware deformity, please check each sensor.**

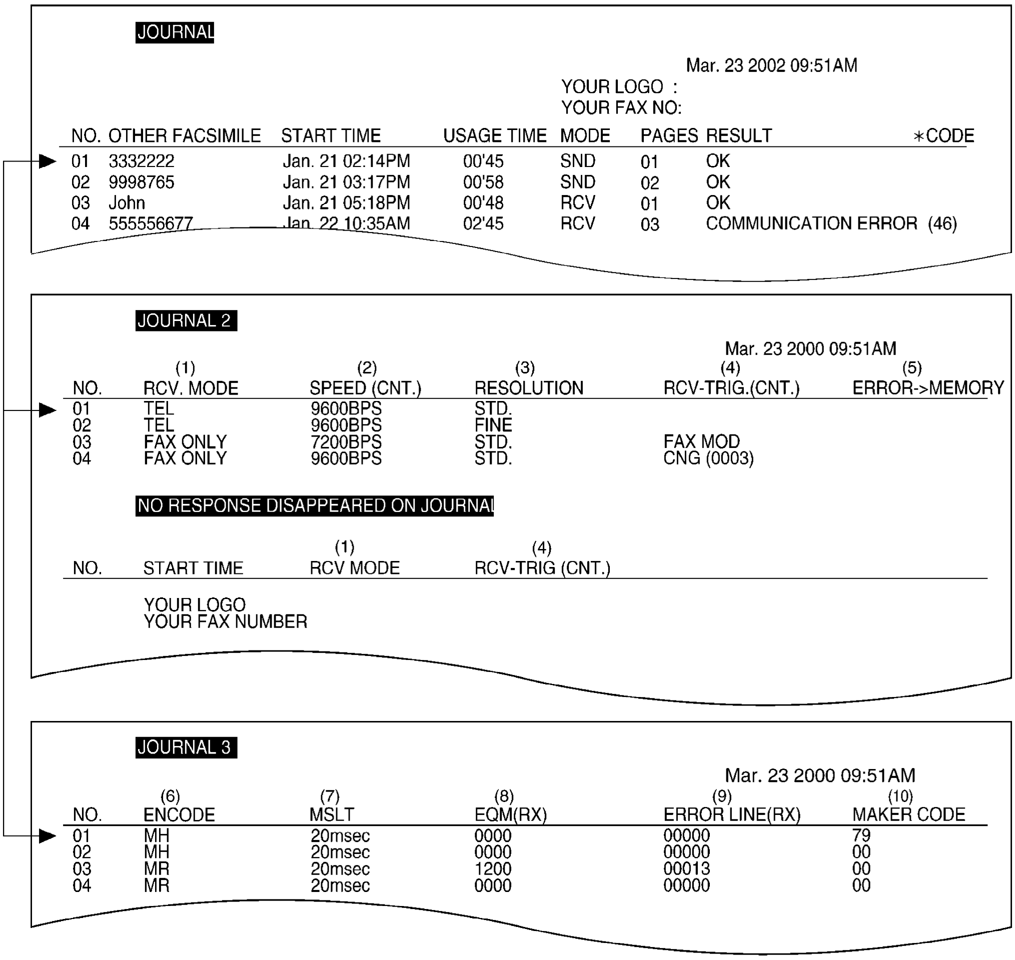
### 6.5.10.1.4. THE UNIT CAN COPY, BUT CANNOT TRANSMIT/RECEIVE


Without connecting the unit to a telephone line, perform a modem test. Is a signal audible from the handset or speakerphone?
(Refer to TEST FUNCTION)
OK
NG
Connect a PBX and TEL line and go to the off-hook. status.
Is the signal at pin 69 of IC602 output?
Check the trace between pins 69 of IC602 and the Tip-Ring.
NO
Is the dial tone signal input at pin 60 of IC602?
NO
YES
YES
Check the solder at pin (XMDMCS) of IC606(ASIC).
Check the trace between T200 and pin 60 of IC602.
Replace IC602. (MODEM)
OK
Replace IC602.

**CROSS REFERENCE:**
**TEST FUNCTIONS ()**

## 6.5.11. SPECIAL SERVICE JOURNAL REPORTS

**Journal 2 and Journal 3 shown below, which are special journals giving the additional detailed information about the latest 35 communications, can be printed by Service Code 881 or 882. Remote printing function for the journal reports (JOURNAL, JOURNAL 2 and JOURNAL 3) is also available for service technicians. (Refer to PROGRAM MODE TABLE().) The JOURNAL report only gives you basic information about a communication, but the other two journal reports provide different information on the same item (communication).**



JOURNAL

Mar. 23 2002 09:51AM
YOUR LOGO :
YOUR FAX NO:

| NO. | OTHER FACSIMILE | START TIME | USAGE TIME | MODE | PAGES | RESULT | ∗CODE |
|---|---|---|---|---|---|---|---|
| 01 | 3332222 | Jan. 21 02:14PM | 00'45 | SND | 01 | OK | |
| 02 | 9998765 | Jan. 21 03:17PM | 00'58 | SND | 02 | OK | |
| 03 | John | Jan. 21 05:18PM | 00'48 | RCV | 01 | OK | |
| 04 | 555556677 | Jan. 22 10:35AM | 02'45 | RCV | 03 | COMMUNICATION ERROR (46) | |

JOURNAL 2

Mar. 23 2000 09:51AM

| NO. | (1) RCV. MODE | (2) SPEED (CNT.) | (3) RESOLUTION | (4) RCV-TRIG.(CNT.) | (5) ERROR->MEMORY |
|---|---|---|---|---|---|
| 01 | TEL | 9600BPS | STD. | | |
| 02 | TEL | 9600BPS | FINE | | |
| 03 | FAX ONLY | 7200BPS | STD. | FAX MOD | |
| 04 | FAX ONLY | 9600BPS | STD. | CNG (0003) | |

NO RESPONSE DISAPPEARED ON JOURNAL

| NO. | START TIME | (1) RCV MODE | (4) RCV-TRIG (CNT.) |
|---|---|---|---|

YOUR LOGO
YOUR FAX NUMBER

JOURNAL 3

Mar. 23 2000 09:51AM

| NO. | (6) ENCODE | (7) MSLT | (8) EQM(RX) | (9) ERROR LINE(RX) | (10) MAKER CODE |
|---|---|---|---|---|---|
| 01 | MH | 20msec | 0000 | 00000 | 79 |
| 02 | MH | 20msec | 0000 | 00000 | 00 |
| 03 | MR | 20msec | 1200 | 00013 | 00 |
| 04 | MR | 20msec | 0000 | 00000 | 00 |

**HOW TO READ JOURNAL REPORTS:**
**Example:**

1. **Look at NO. 01 in the JOURNAL. If you want to know about the details about that item, see NO. 01 in the JOURNAL 2 and the JOURNAL 3. You can get the following information.**
   *** MODE: Fax transmission**

*** RCV. MODE: TEL**
*** TX SPEED: 9.6 kbps**
*** RESOLUTION: standard**
*** ENCODE: MH**
*** MAKER CODE: 79**

**2. Look at NO. 04 in the JOURNAL 2. CNG (0003) indicates that the CNG signal has been received three times since the purchase date.**

For further details, see JOURNAL 2 and JOURNAL 3.

### 6.5.11.1. JOURNAL 2

Refer to JOURNAL 2 in PRINTOUT EXAMPLE().
Journal 2 displays the additional detailed information about the last 35 communications.
Descriptions:
(1) RCV. MODE
Indicates which receive mode the unit was in when the unit received a fax message.
This information is also displayed when the unit transmitted a fax message.
(2) SPEED
Indicates the speed of the communication. If multiple pages are transmitted or received, it indicates the last page's communication speed. If there is a communication error, "?" is displayed.
(3) RESOLUTION
Indicates the resolution of the communication. If multiple pages are transmitted or received, it indicates the last page's resolution. If there is a communication error, "?" is displayed.
(4) RCV-TRIG. (CNT.)
Indicates the trigger that causes the unit to switch to the fax receive mode. The available options are listed in JOURNAL 2 in PRINTOUT EXAMPLE(). The values in parentheses indicate how many times the trigger has been used. (For example, "0003" means three times.)

| No. | Display | Function |
|---|---|---|
| 1 | FAX MODE | Means the unit received a fax message in the FAX mode. |
| 2 | MAN RCV | Means the unit received a fax message by manual operation. |
| 3 | RMT DTMF | Means the unit detected DTMF (Remote Fax activation code) entered remotely. |
| 4 | PAL DTMF | Means the unit detected DTMF (Remote Fax activation code) entered by a parallel connected telephone. |
| 5 | TURN-ON | Means the unit started to receive after 10 rings. (Remote Turn On: Service Code #573) |

(5) ERROR → MEMORY
Indicates the reason why the unit received a fax message in memory.

If you look at No.11 in the JOURNAL 2 in PRINTOUT EXAMPLE(), it shows the fax message was received in memory due to “PAPER OUT” error.

[NO RESPONSE DISAPPEARED ON JOURNAL]

The “NO RESPONSE DISAPPEARED ON JOURNAL” displays the information about the last 10 communications terminated by “No Response”. (Some of the communications terminated by “No Response” were not displayed in the JOURNAL.)

When a fax transmission cannot be performed because the other party’s unit is set to the TEL mode, “No response” will be printed.

### 6.5.11.2. JOURNAL 3

Refer to JOURNAL 3 in PRINTOUT EXAMPLE().

Description

(6) ENCODE

Compression Code: MH/MR/MMR

(7) MSLT

MSLT means Minimum Scan Line Time. Used only at the factory.

(8) EQM

EQM means Eye Quality Monitor. Used only at the factory.

(9) ERROR LINE (RX)

When an error occurs while receiving a fax, this shows the number of error lines.

(10) MAKER CODE

This shows a 2 digit code of the other party's fax machine brand.
0E: “KX” model
00: Unknown
79: “UF” model
19: “Xerox” model

### 6.5.11.3. PRINTOUT EXAMPLE

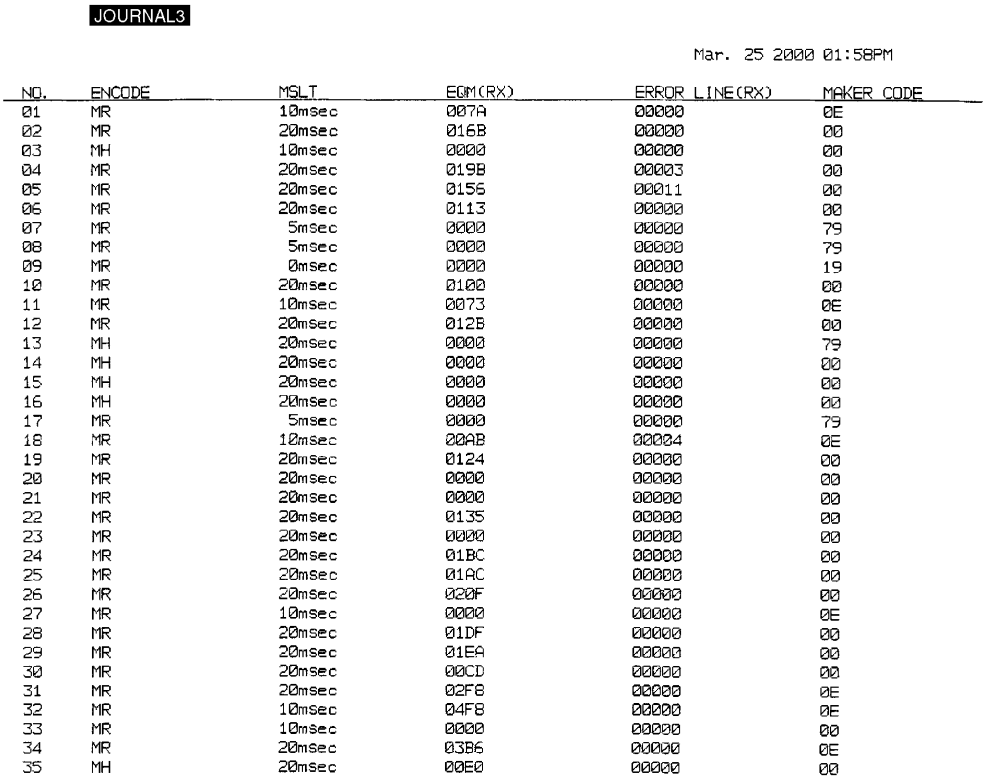
JOURNAL2

Mar. 25 2000 01:59PM

| NO. | RCV. MODE | SPEED (CNT.) | RESOLUTION | RCV-TRIG. (CNT.) | ERROR->MEMORY |
|---|---|---|---|---|---|
| 01 | FAX ONLY | 9600BPS | FINE. | FAX MOD | |
| 02 | FAX ONLY | 9600BPS | STD. | FAX MOD | |
| 03 | FAX ONLY | 9600BPS | FINE. | | |
| 04 | FAX ONLY | 9600BPS | FINE. | FAX MOD | |
| 05 | FAX ONLY | 9600BPS | FINE. | FAX MOD | |
| 06 | FAX ONLY | 9600BPS | FINE. | FAX MOD | |
| 07 | FAX ONLY | 9600BPS | FINE. | | |
| 08 | FAX ONLY | 9600BPS | FINE. | | |
| 09 | FAX ONLY | 9600BPS | FINE. | | |
| 10 | FAX ONLY | 9600BPS | STD. | FAX MOD | |
| 11 | FAX ONLY | 9600BPS | FINE. | FAX MOD | PAPER OUT |
| 12 | FAX ONLY | 9600BPS | STD. | FAX MOD | |
| 13 | FAX ONLY | 9600BPS | STD. | | |
| 14 | FAX ONLY | ? | ? | | |
| 15 | FAX ONLY | ? | ? | | |
| 16 | FAX ONLY | ? | ? | | |
| 17 | FAX ONLY | 9600BPS | STD. | | |
| 18 | FAX ONLY | 9600BPS | FINE. | FAX MOD | |
| 19 | FAX ONLY | 9600BPS | STD. | FAX MOD | |
| 20 | FAX ONLY | 9600BPS | S-FINE. | | |
| 21 | FAX ONLY | 9600BPS | FINE. | | |
| 22 | FAX ONLY | 9600BPS | FINE. | FAX MOD | |
| 23 | FAX ONLY | ? | ? | FAX MOD | |
| 24 | FAX ONLY | 9600BPS | STD. | FAX MOD | |
| 25 | FAX ONLY | 9600BPS | STD. | FAX MOD | |
| 26 | FAX ONLY | 9600BPS | FINE. | FAX MOD | |
| 27 | FAX ONLY | 9600BPS | FINE. | | |
| 28 | FAX ONLY | 9600BPS | STD. | FAX MOD | |
| 29 | FAX ONLY | 9600BPS | FINE. | FAX MOD | |
| 30 | FAX ONLY | 9600BPS | S-FINE. | FAX MOD | |
| 31 | FAX ONLY | 9600BPS | STD. | FAX MOD | |
| 32 | FAX ONLY | 9600BPS | STD. | FAX MOD | |
| 33 | FAX ONLY | ? | ? | FAX MOD | |
| 34 | FAX ONLY | 9600BPS | STD. | FAX MOD | |
| 35 | FAX ONLY | 9600BPS | STD. | FAX MOD | |

NO RESPONSE DISAPPEARED ON JOURNAL

| NO. | START TIME | RCV MODE | RCV-TRIG. (CNT.) |
|---|---|---|---|



```
JOURNAL3

                                                                     Mar. 25 2000 01:58PM

NO.   ENCODE            MSLT          EQM(RX)        ERROR LINE(RX)   MAKER CODE
01    MR                10msec        007A           00000            0E
02    MR                20msec        016B           00000            00
03    MH                10msec        0000           00000            00
04    MR                20msec        019B           00003            00
05    MR                20msec        0156           00011            00
06    MR                20msec        0113           00000            00
07    MR                 5msec        0000           00000            79
08    MR                 5msec        0000           00000            79
09    MR                 0msec        0000           00000            19
10    MR                20msec        0100           00000            00
11    MR                10msec        0073           00000            0E
12    MR                20msec        012B           00000            00
13    MH                20msec        0000           00000            79
14    MH                20msec        0000           00000            00
15    MH                20msec        0000           00000            00
16    MH                20msec        0000           00000            00
17    MR                 5msec        0000           00000            79
18    MR                10msec        00AB           00004            0E
19    MR                20msec        0124           00000            00
20    MR                20msec        0000           00000            00
21    MR                20msec        0000           00000            00
22    MR                20msec        0135           00000            00
23    MR                20msec        0000           00000            00
24    MR                20msec        01BC           00000            00
25    MR                20msec        01AC           00000            00
26    MR                20msec        020F           00000            00
27    MR                10msec        0000           00000            0E
28    MR                20msec        01DF           00000            00
29    MR                20msec        01EA           00000            00
30    MR                20msec        00CD           00000            00
31    MR                20msec        02F8           00000            0E
32    MR                10msec        04F8           00000            0E
33    MR                10msec        0000           00000            00
34    MR                20msec        03B6           00000            0E
35    MH                20msec        00E0           00000            00
```

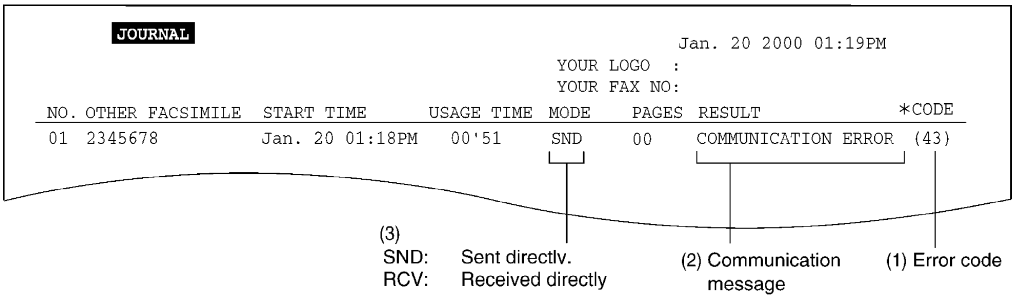
### 6.5.11.4. HOW TO OUTPUT THE JOURNAL REPORT

## 1. Press the MENU button.

## 2. Press “#”, then “8” and “3”.

## 3. Press the START/COPY/SET button.

## 4. The report prints out.



```
JOURNAL
                                                Jan. 20 2000 01:19PM
                                      YOUR LOGO   :
                                      YOUR FAX NO:
NO. OTHER FACSIMILE  START TIME     USAGE TIME  MODE   PAGES  RESULT                *CODE
01  2345678          Jan. 20 01:18PM   00'51     SND    00    COMMUNICATION ERROR  (43)
```

**CROSS REFERENCE:**

**FEATURES()**

**Error code table:**

| (1) CODE | (2) RESULT | (3) MODE | SYMPTOM | Co<br>me |
|---|---|---|---|---|
|  | PRESSED THE STOP KEY | SND & RCV | Communication was interrupted by the STOP button. |  |
|  | DOCUMENT JAMMED | SND | The document paper is jammed. |  |
|  | NO DOCUMENT | SND | No document paper. |  |
|  | THE COVER WAS OPENED | SND & RCV | The cover is open. |  |
| 28 | COMMUNICATION ERROR | SND & RCV | -------------- |  |
| 40 | COMMUNICATION ERROR | SND | Transmission is finished when the T1 TIMER expires. |  |
| 41 | COMMUNICATION ERROR | SND | DCN is received after DCS transmission. |  |
| 42 | COMMUNICATION ERROR | SND | FTT is received after transmission of a 2400BSP training signal. |  |
| 43 | COMMUNICATION ERROR | SND | No response after post message is transmitted three times. |  |
| 44 | COMMUNICATION ERROR | SND | RTN and PIN are received. |  |
| 46 | COMMUNICATION ERROR | RCV | No response after FTT is transmitted. |  |
| 48 | COMMUNICATION ERROR | RCV | No post message. |  |
| 49 | COMMUNICATION ERROR | RCV | RTN is transmitted. |  |
| 50 | COMMUNICATION ERROR | RCV | PIN is transmitted (to PRI-Q). |  |
| 51 | COMMUNICATION ERROR | RCV | PIN is transmitted. |  |
| 52 | COMMUNICATION ERROR | RCV | Reception is finished when the T1 TIMER expires. |  |
| 54 | ERROR-NOT YOUR UNIT | RCV | DCN is received after DIS transmission. |  |
| 58 | COMMUNICATION ERROR | RCV | DCN is received after FTT transmission. |  |
| 59 | ERROR-NOT YOUR UNIT | SND | DCN responds to the post message. |  |
| 64 | COMMUNICATION ERROR | POL. RX | Polling is not possible. |  |
| 65 | COMMUNICATION ERROR | SND | DCN is received before DIS reception. |  |
| 65 | COMMUNICATION ERROR | RCV | Reception is not EOP, EOM PIP, PIN, RTP or RTN. |  |
| 68 | COMMUNICATION ERROR | RCV | No response at the other party after MCF or CFR is transmitted. |  |

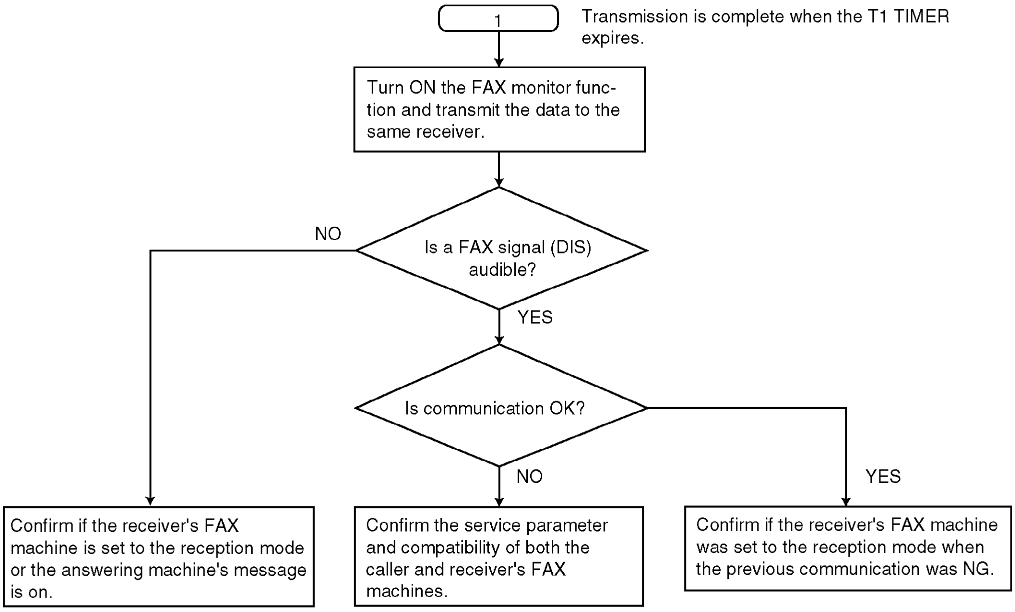
| (1) CODE | (2) RESULT | (3) MODE | SYMPTOM | Co me |
|---|---|---|---|---|
| 70 | ERROR-NOT YOUR UNIT | RCV | DCN is received after CFR transmission. | |
| 72 | COMMUNICATION ERROR | RCV | Carrier is cut when the image signal is received. | |
| 75 | MEMORY FULL | RCV | The document was not received due to memory full. | |
| 79 | CANCELED | SND | The multi-station transmission was rejected by the user. | |
| | | | | |
| FF | COMMUNICATION ERROR | SND & RCV | Modem error. For the DCN, DCN, etc. abbreviations, refer to MODEM SECTION (). | |

SND=TRANSMISSION / RCV=RECEPTION
Most fax communication problems can be resolved by the following steps.

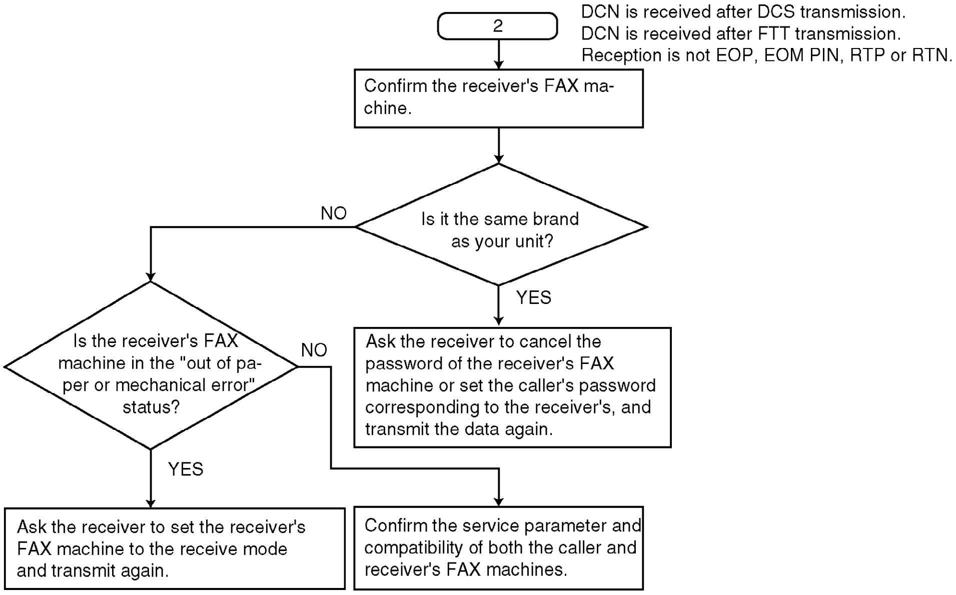
1. Change the transmit level. (Service code: 596, refer to SERVICE FUNCTION TABLE().)
2. Change the TX speed/RX speed. (Service code: 717/718, refer to SERVICE FUNCTION TABLE ().)

Note*:
If the problem remains, see the following “Countermeasure” flow chart.

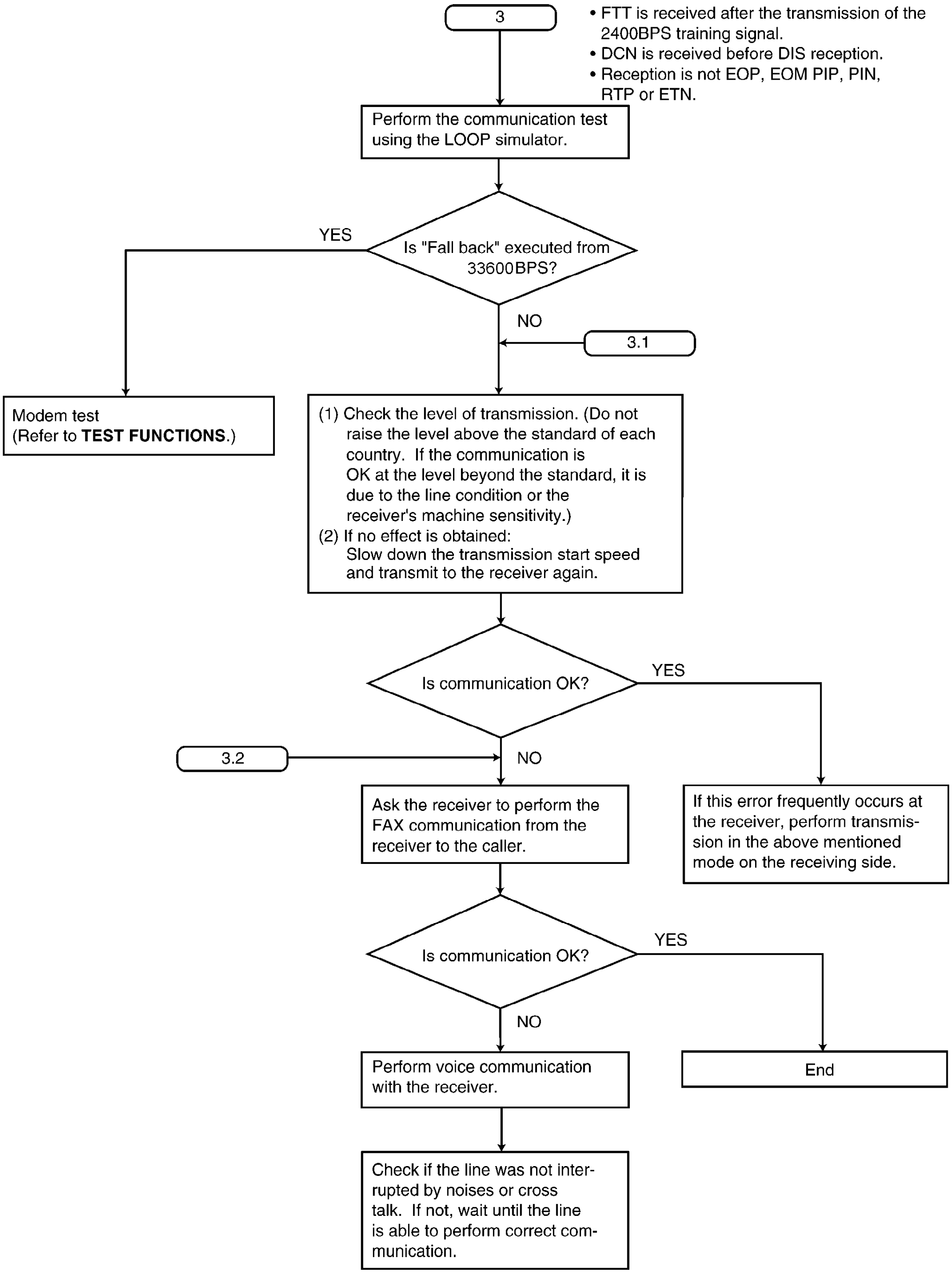
**Countermeasure**


1
Turn ON the FAX monitor function and transmit the data to the same receiver.
Is a FAX signal (DIS) audible?
NO
YES
Is communication OK?
NO
YES
Confirm if the receiver's FAX machine is set to the reception mode or the answering machine's message is on.
Confirm the service parameter and compatibility of both the caller and receiver's FAX machines.
Confirm if the receiver's FAX machine was set to the reception mode when the previous communication was NG.

Transmission is complete when the T1 TIMER expires.

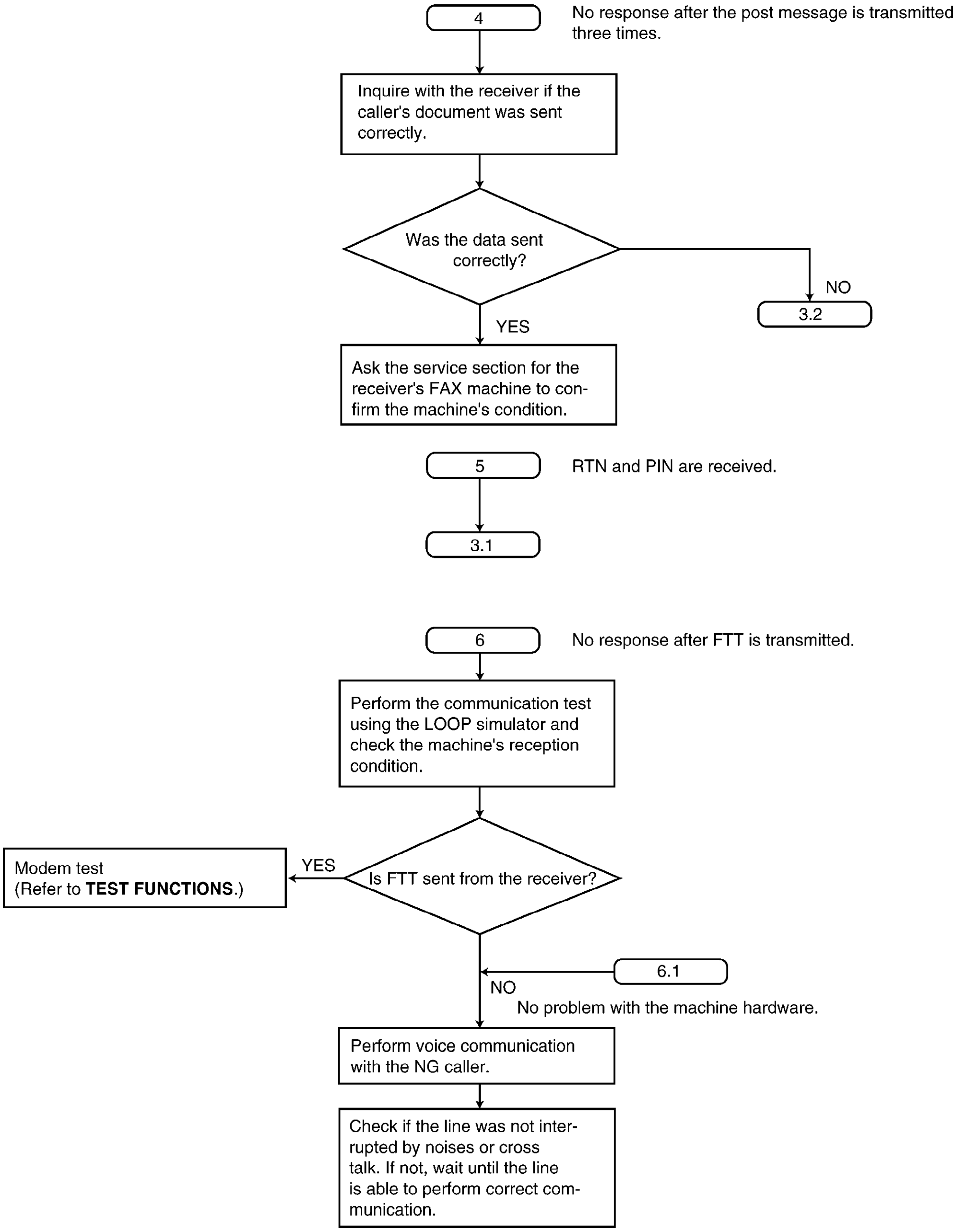

2
Confirm the receiver's FAX machine.
Is it the same brand as your unit?
NO
YES
Ask the receiver to cancel the password of the receiver's FAX machine or set the caller's password corresponding to the receiver's, and transmit the data again.
Is the receiver's FAX machine in the "out of paper or mechanical error" status?
NO
YES
Ask the receiver to set the receiver's FAX machine to the receive mode and transmit again.
Confirm the service parameter and compatibility of both the caller and receiver's FAX machines.

DCN is received after DCS transmission.
DCN is received after FTT transmission.
Reception is not EOP, EOM PIN, RTP or RTN.


3
• FTT is received after the transmission of the 2400BPS training signal.
• DCN is received before DIS reception.
• Reception is not EOP, EOM PIP, PIN, RTP or ETN.
Perform the communication test using the LOOP simulator.
Is "Fall back" executed from 33600BPS?
YES
Modem test (Refer to **TEST FUNCTIONS**.)
NO
3.1
(1) Check the level of transmission. (Do not raise the level above the standard of each country. If the communication is OK at the level beyond the standard, it is due to the line condition or the receiver's machine sensitivity.)
(2) If no effect is obtained: Slow down the transmission start speed and transmit to the receiver again.
Is communication OK?
YES
If this error frequently occurs at the receiver, perform transmission in the above mentioned mode on the receiving side.
3.2
NO
Ask the receiver to perform the FAX communication from the receiver to the caller.
Is communication OK?
YES
End
NO
Perform voice communication with the receiver.
Check if the line was not interrupted by noises or cross talk. If not, wait until the line is able to perform correct communication.

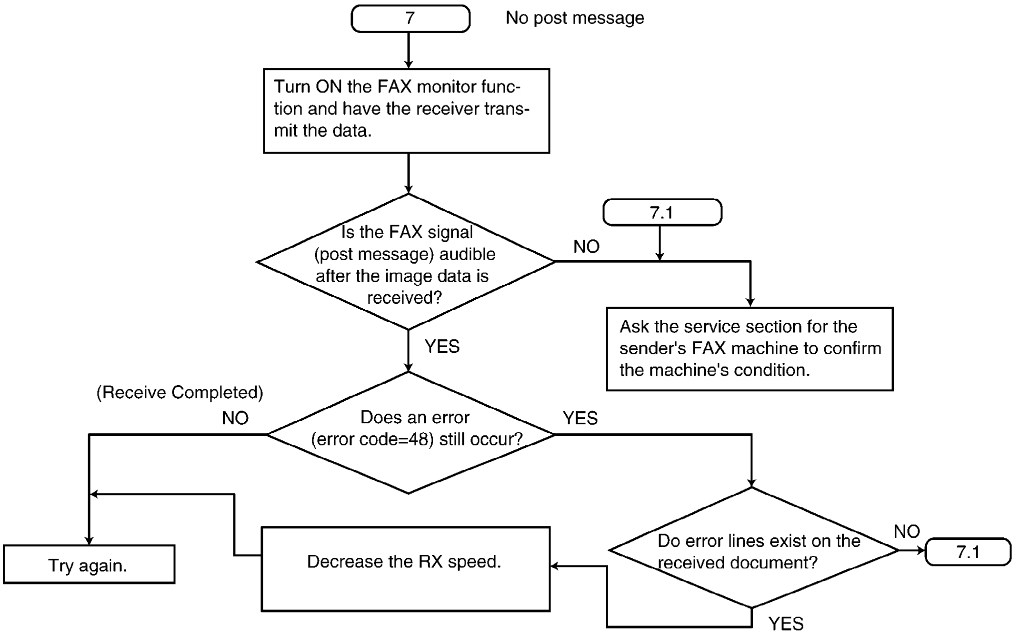
## CROSS REFERENCE:

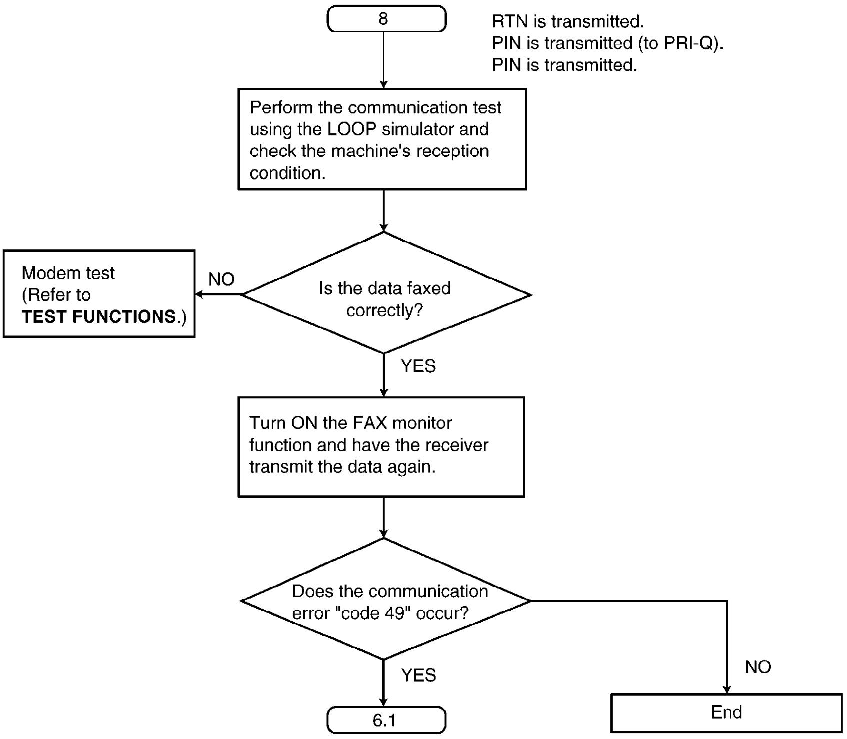
TEST FUNCTIONS ()


4
No response after the post message is transmitted three times.
Inquire with the receiver if the caller's document was sent correctly.
Was the data sent correctly?
NO
3.2
YES
Ask the service section for the receiver's FAX machine to confirm the machine's condition.
5
RTN and PIN are received.
3.1
6
No response after FTT is transmitted.
Perform the communication test using the LOOP simulator and check the machine's reception condition.
Is FTT sent from the receiver?
YES
Modem test
(Refer to TEST FUNCTIONS.)
6.1
NO
No problem with the machine hardware.
Perform voice communication with the NG caller.
Check if the line was not interrupted by noises or cross talk. If not, wait until the line is able to perform correct communication.

## CROSS REFERENCE:

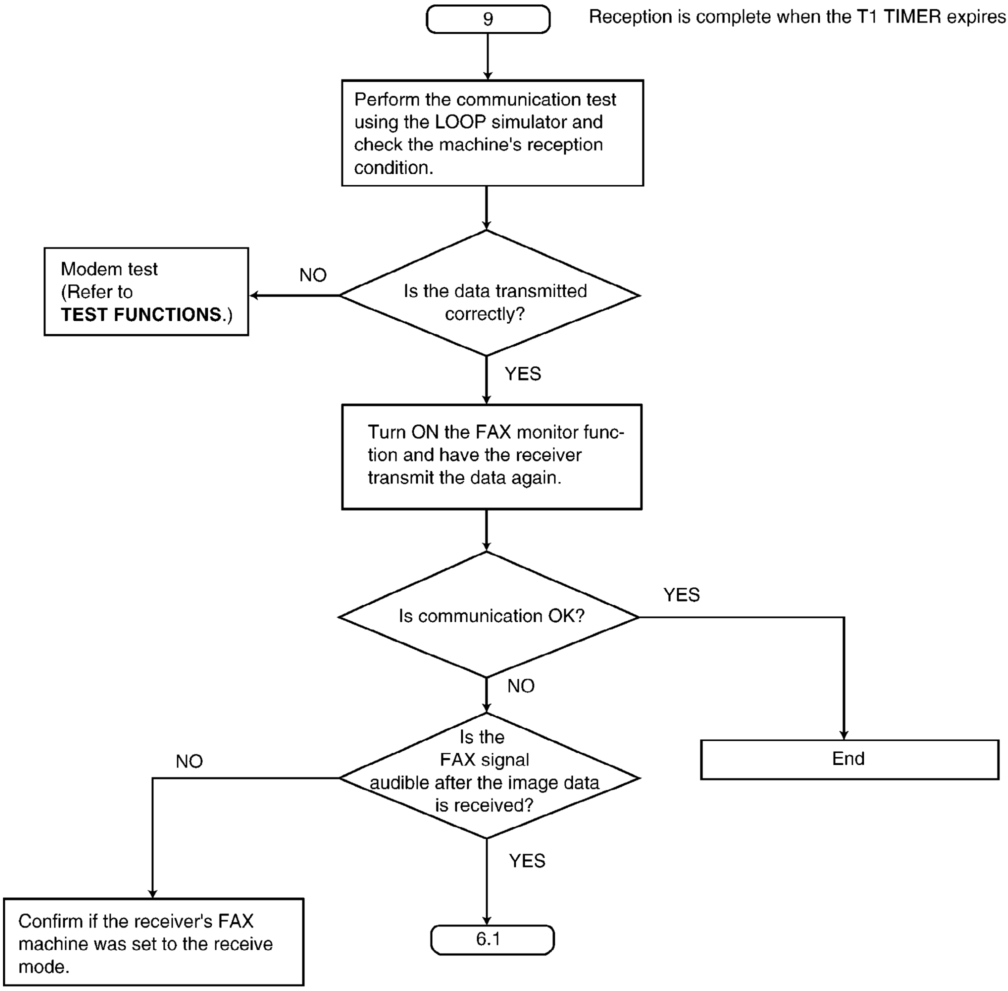
**TEST FUNCTIONS ()**


7
No post message
Turn ON the FAX monitor function and have the receiver transmit the data.
Is the FAX signal (post message) audible after the image data is received?
NO
7.1
Ask the service section for the sender's FAX machine to confirm the machine's condition.
YES
(Receive Completed)
NO
Does an error (error code=48) still occur?
YES
Try again.
Decrease the RX speed.
Do error lines exist on the received document?
NO
7.1
YES


8
RTN is transmitted.
PIN is transmitted (to PRI-Q).
PIN is transmitted.
Perform the communication test using the LOOP simulator and check the machine's reception condition.
Modem test (Refer to TEST FUNCTIONS.)
NO
Is the data faxed correctly?
YES
Turn ON the FAX monitor function and have the receiver transmit the data again.
Does the communication error "code 49" occur?
NO
YES
6.1
End

**CROSS REFERENCE:**

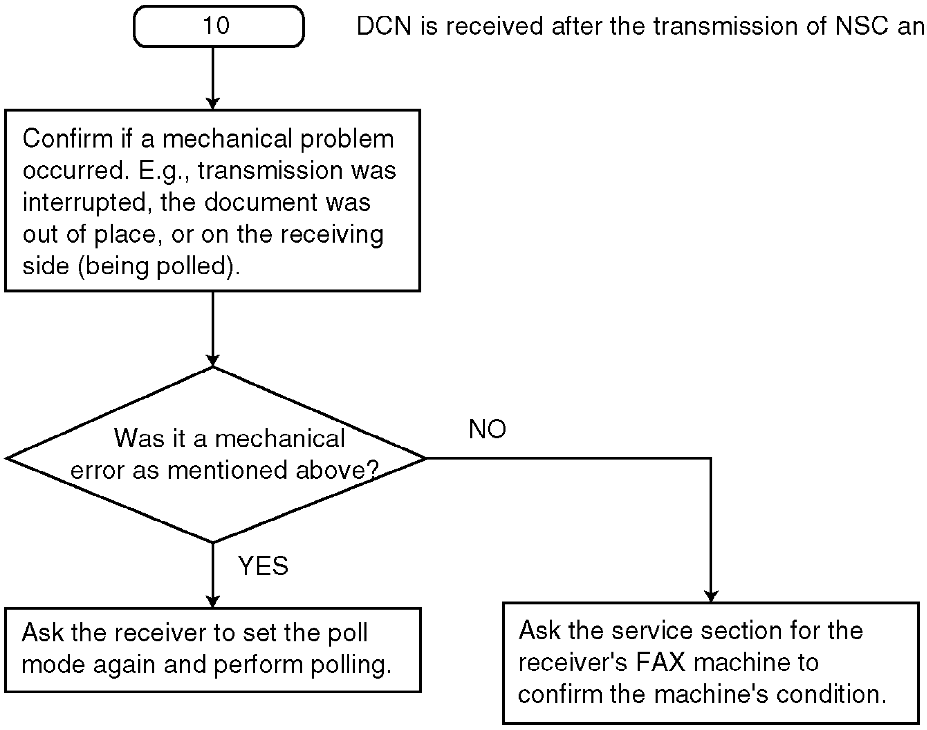
**TEST FUNCTIONS ()**


9
Perform the communication test using the LOOP simulator and check the machine's reception condition.
Is the data transmitted correctly?
NO
Modem test (Refer to **TEST FUNCTIONS**.)
YES
Turn ON the FAX monitor function and have the receiver transmit the data again.
Is communication OK?
YES
End
NO
Is the FAX signal audible after the image data is received?
NO
Confirm if the receiver's FAX machine was set to the receive mode.
YES
6.1

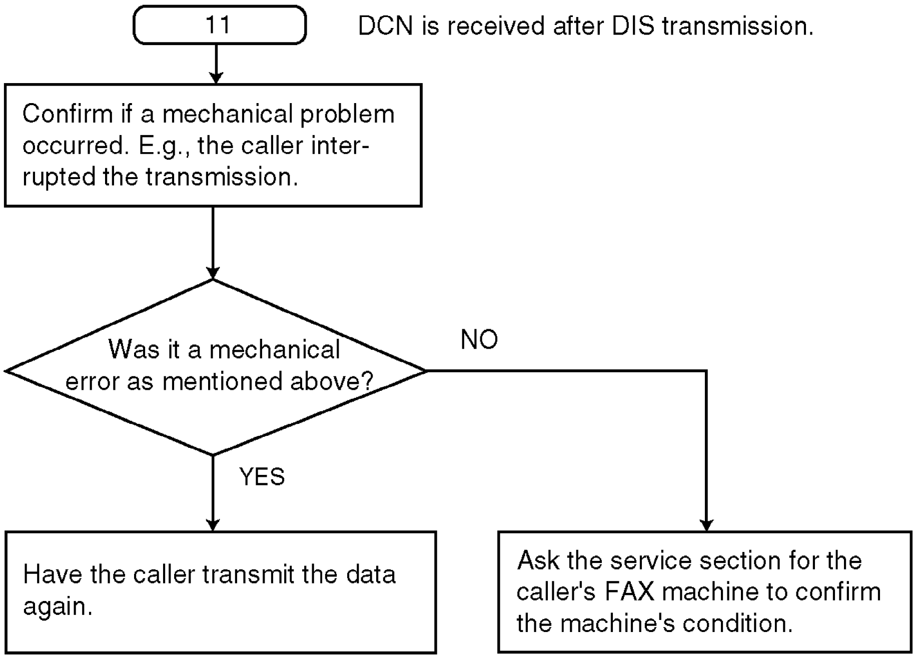
Reception is complete when the T1 TIMER expires.

**CROSS REFERENCE:**

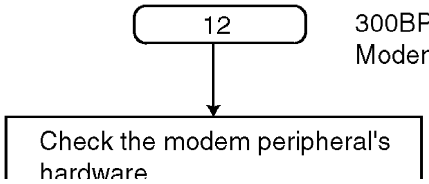
**TEST FUNCTIONS ()**


10
Confirm if a mechanical problem occurred. E.g., transmission was interrupted, the document was out of place, or on the receiving side (being polled).
Was it a mechanical error as mentioned above?
NO
YES
Ask the receiver to set the poll mode again and perform polling.
Ask the service section for the receiver's FAX machine to confirm the machine's condition.

DCN is received after the transmission of NSC and DTC.

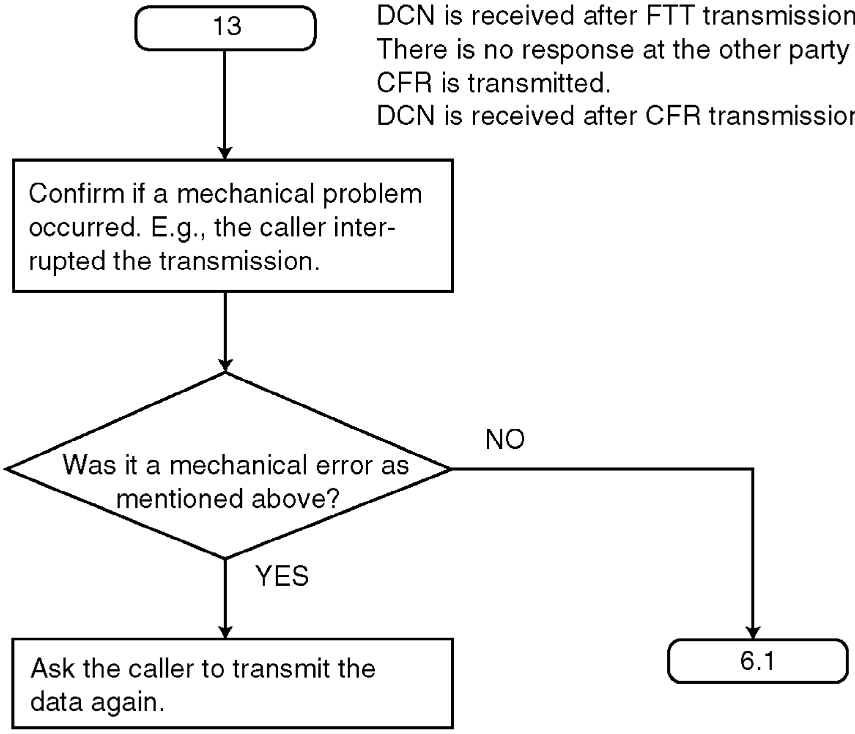

11
Confirm if a mechanical problem occurred. E.g., the caller interrupted the transmission.
Was it a mechanical error as mentioned above?
NO
YES
Have the caller transmit the data again.
Ask the service section for the caller's FAX machine to confirm the machine's condition.

DCN is received after DIS transmission.

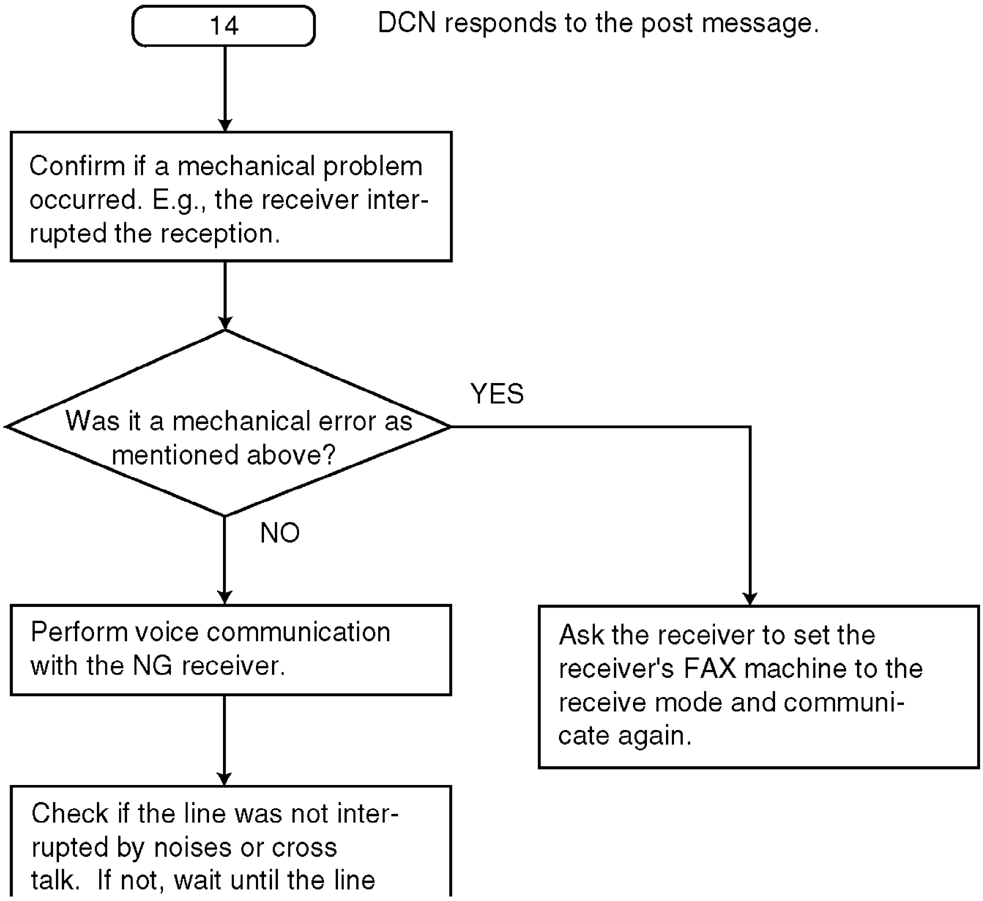

12
Check the modem peripheral's hardware

300BPS error
Modem error

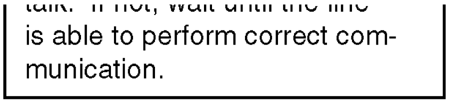
hardware.

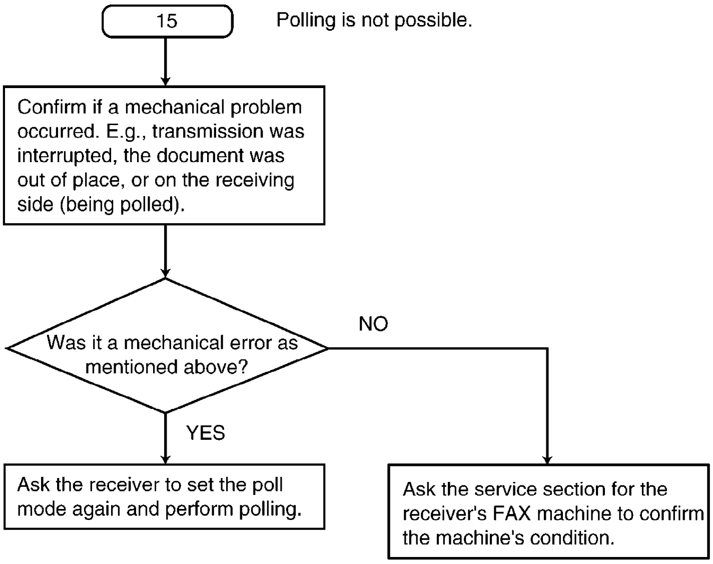

DCN is received after FTT transmission.
There is no response at the other party after MCF or CFR is transmitted.
DCN is received after CFR transmission.

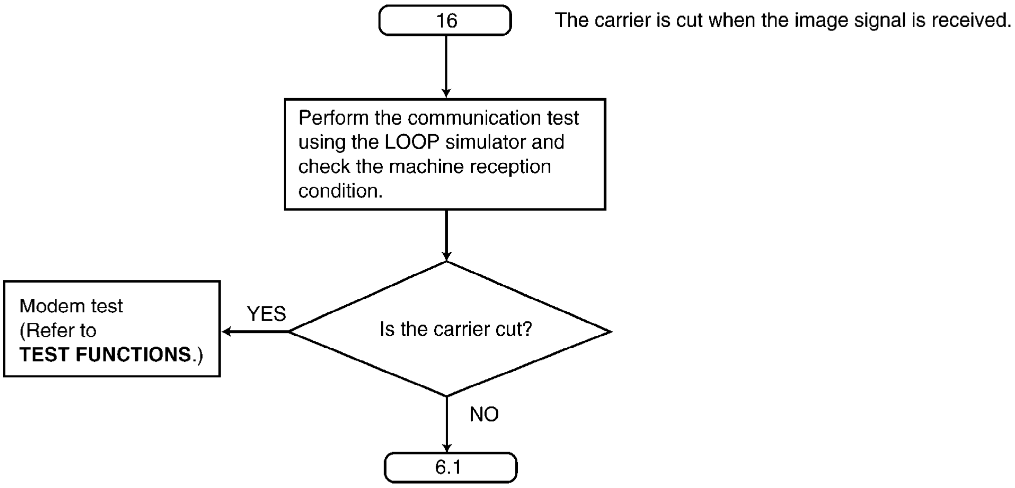
13
Confirm if a mechanical problem occurred. E.g., the caller interrupted the transmission.
Was it a mechanical error as mentioned above?
NO
YES
Ask the caller to transmit the data again.
6.1


DCN responds to the post message.

14
Confirm if a mechanical problem occurred. E.g., the receiver interrupted the reception.
Was it a mechanical error as mentioned above?
YES
NO
Perform voice communication with the NG receiver.
Ask the receiver to set the receiver's FAX machine to the receive mode and communicate again.
Check if the line was not interrupted by noises or cross talk. If not, wait until the line


is able to perform correct communication.


15
Polling is not possible.
Confirm if a mechanical problem occurred. E.g., transmission was interrupted, the document was out of place, or on the receiving side (being polled).
Was it a mechanical error as mentioned above?
NO
YES
Ask the receiver to set the poll mode again and perform polling.
Ask the service section for the receiver's FAX machine to confirm the machine's condition.

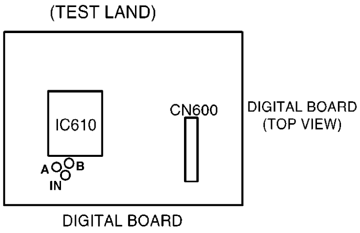

16
The carrier is cut when the image signal is received.
Perform the communication test using the LOOP simulator and check the machine reception condition.
Is the carrier cut?
YES
Modem test
(Refer to
TEST FUNCTIONS.)
NO
6.1

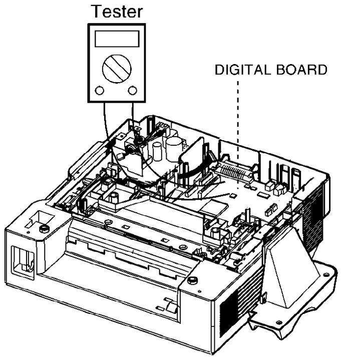
**CROSS REFERENCE:**

**TEST FUNCTIONS ()**

### 6.5.11.5. CHECK THE STATUS OF THE DIGITAL BOARD

Please check the status (voltage) of test lands **TP-A** and **TP-B**.
The result may tell you a defective point.





- Turn off the power supply.
- Short using a metallic object, such as tweezers, between the **TP-IN** point and **DG** land, and turn on the AC power for a few seconds. And then remove a metallic object.
- Check the following voltages using an oscilloscope or tester.
- To cancel the status check mode, turn off the AC power.

| Defective point | Check point voltage | | Check items |
|---|---|---|---|
| | A | B | |
| RTC (IC604) | 5V | 5V | IC604( RTC is included in IC604), X601 |
| SDRAM (IC608) | 0V | 5V | IC608, RA610, RA614, RA622~625, R675, R676, R680, R681 |
| MODEM (IC604) | 5V | 0V | IC604(MODEM is included in IC604), IC609 |
| ALL OK | 0V | 0V | |

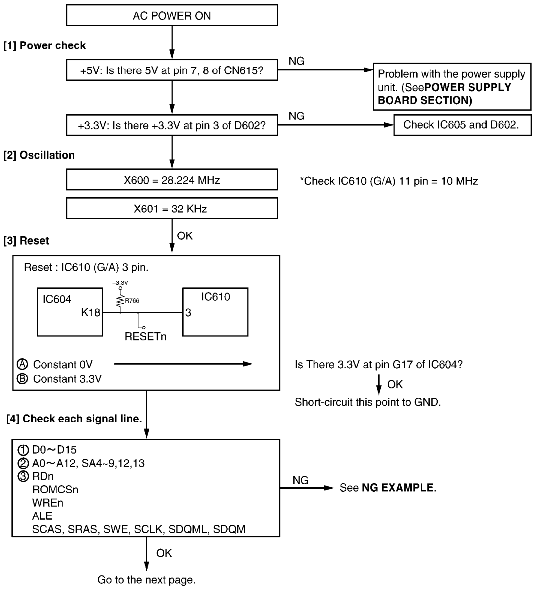
- This indicates that the Add/Data Bus, RAM, ROM, and G/A are all connected to the ASIC properly and that control from the ASIC is possible.

Please check the soldering and conduction of these components.
If there is no problem, replace the ICs.

If you still have a problem with the digital board,
please refer to **NG wave pattern**. (See )

## 6.5.12. INITIALIZING ERROR

**After the power is turned on, the ASIC initializes and checks each IC.**
**The ROM, SDRAM, and modem are checked.**
**If initialization fails for the ICs, the system will not boot up.**
**In this case, please find the cause as follows.**

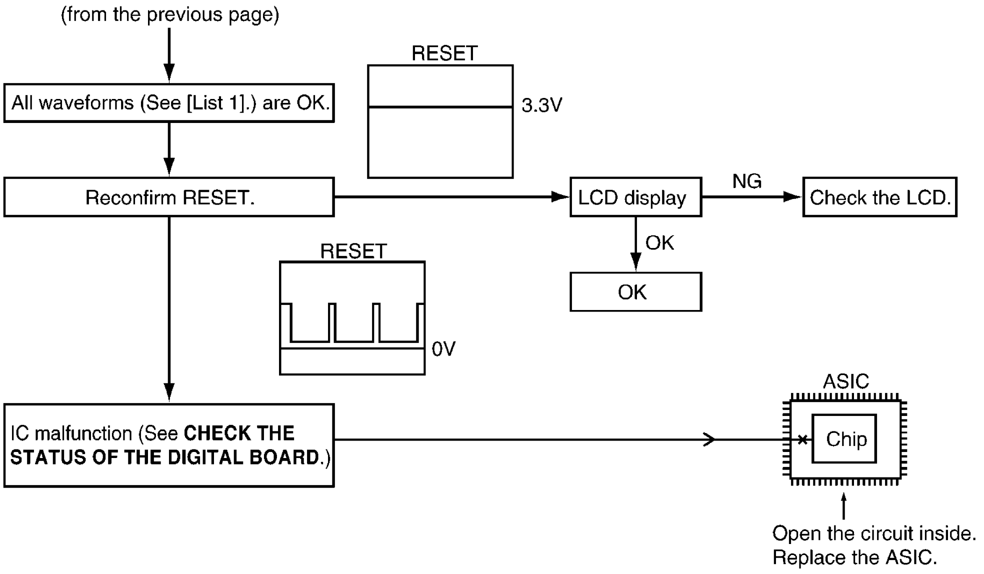

AC POWER ON
[1] Power check
+5V: Is there 5V at pin 7, 8 of CN615?
NG
Problem with the power supply unit. (See**POWER SUPPLY BOARD SECTION)**
+3.3V: Is there +3.3V at pin 3 of D602?
NG
Check IC605 and D602.
[2] Oscillation
X600 = 28.224 MHz
*Check IC610 (G/A) 11 pin = 10 MHz
X601 = 32 KHz
OK
[3] Reset
Reset : IC610 (G/A) 3 pin.
+3.3V
R766
IC604
K18
IC610
3
RESETn
Ⓐ Constant 0V
Ⓑ Constant 3.3V
Is There 3.3V at pin G17 of IC604?
OK
Short-circuit this point to GND.
[4] Check each signal line.
① D0~D15
② A0~A12, SA4~9,12,13
③ RDn
ROMCSn
WREn
ALE
SCAS, SRAS, SWE, SCLK, SDQML, SDQM
NG
See **NG EXAMPLE**.
OK
Go to the next page.

## CROSS REFERENCE:

NG EXAMPLE ()

CHECK THE STATUS OF THE DIGITAL BOARD ()

POWER SUPPLY BOARD SECTION ()


(from the previous page)
All waveforms (See [List 1].) are OK.
RESET
3.3V
Reconfirm RESET.
LCD display
NG
Check the LCD.
OK
OK
RESET
0V
IC malfunction (See **CHECK THE STATUS OF THE DIGITAL BOARD**.)
ASIC
Chip
Open the circuit inside.
Replace the ASIC.

**Other NG examples while the power is ON and the LCD displays the following.**

LCD display | CALL SERVICE ＊ | → The error is displayed when the heater head does not warm up, or the LSU or FAN motor does not work.

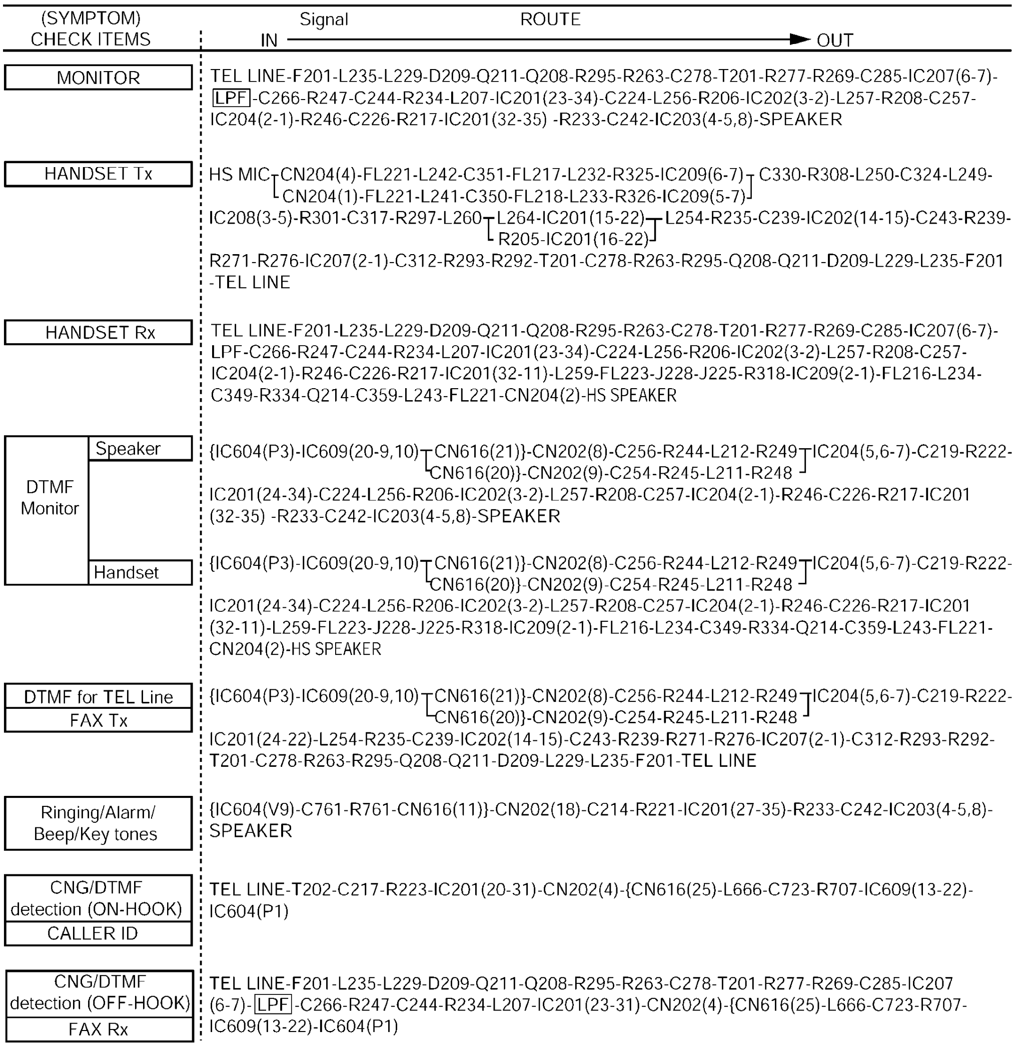
## CROSS REFERENCE:

CHECK THE STATUS OF THE DIGITAL BOARD ()

## 6.5.13. ANALOG BOARD SECTION

**This chapter provides the testing procedures required for the analog parts. A signal route to be tested is determined depending upon purposes. For example, the handset TX route begins at the handset microphone and the signal is output to the telephone line. The signal mainly flowing on this route is analog. You can trace the signal with an oscilloscope. The signal flow on each route is shown in the Check Sheet here. If you find a specific problem in the unit, for example if you cannot communicate with the H/S, trace that signal route locally with the following Check Sheet and locate the faulty point.**

### 6.5.13.1. CHECK SHEET



| (SYMPTOM)<br>CHECK ITEMS | Signal ROUTE<br>IN → OUT |
|---|---|
| MONITOR | TEL LINE-F201-L235-L229-D209-Q211-Q208-R295-R263-C278-T201-R277-R269-C285-IC207(6-7)-<br>LPF-C266-R247-C244-R234-L207-IC201(23-34)-C224-L256-R206-IC202(3-2)-L257-R208-C257-<br>IC204(2-1)-R246-C226-R217-IC201(32-35) -R233-C242-IC203(4-5,8)-SPEAKER |
| HANDSET Tx | HS MIC┬CN204(4)-FL221-L242-C351-FL217-L232-R325-IC209(6-7)┬ C330-R308-L250-C324-L249-<br>└CN204(1)-FL221-L241-C350-FL218-L233-R326-IC209(5-7)┘<br>IC208(3-5)-R301-C317-R297-L260┬L264-IC201(15-22)┬L254-R235-C239-IC202(14-15)-C243-R239-<br>└R205-IC201(16-22)┘<br>R271-R276-IC207(2-1)-C312-R293-R292-T201-C278-R263-R295-Q208-Q211-D209-L229-L235-F201<br>-TEL LINE |
| HANDSET Rx | TEL LINE-F201-L235-L229-D209-Q211-Q208-R295-R263-C278-T201-R277-R269-C285-IC207(6-7)-<br>LPF-C266-R247-C244-R234-L207-IC201(23-34)-C224-L256-R206-IC202(3-2)-L257-R208-C257-<br>IC204(2-1)-R246-C226-R217-IC201(32-11)-L259-FL223-J228-J225-R318-IC209(2-1)-FL216-L234-<br>C349-R334-Q214-C359-L243-FL221-CN204(2)-HS SPEAKER |
| DTMF Monitor — Speaker | {IC604(P3)-IC609(20-9,10)┬CN616(21)}-CN202(8)-C256-R244-L212-R249┬IC204(5,6-7)-C219-R222-<br>└CN616(20)}-CN202(9)-C254-R245-L211-R248┘<br>IC201(24-34)-C224-L256-R206-IC202(3-2)-L257-R208-C257-IC204(2-1)-R246-C226-R217-IC201<br>(32-35) -R233-C242-IC203(4-5,8)-SPEAKER |
| DTMF Monitor — Handset | {IC604(P3)-IC609(20-9,10)┬CN616(21)}-CN202(8)-C256-R244-L212-R249┬IC204(5,6-7)-C219-R222-<br>└CN616(20)}-CN202(9)-C254-R245-L211-R248┘<br>IC201(24-34)-C224-L256-R206-IC202(3-2)-L257-R208-C257-IC204(2-1)-R246-C226-R217-IC201<br>(32-11)-L259-FL223-J228-J225-R318-IC209(2-1)-FL216-L234-C349-R334-Q214-C359-L243-FL221-<br>CN204(2)-HS SPEAKER |
| DTMF for TEL Line<br>FAX Tx | {IC604(P3)-IC609(20-9,10)┬CN616(21)}-CN202(8)-C256-R244-L212-R249┬IC204(5,6-7)-C219-R222-<br>└CN616(20)}-CN202(9)-C254-R245-L211-R248┘<br>IC201(24-22)-L254-R235-C239-IC202(14-15)-C243-R239-R271-R276-IC207(2-1)-C312-R293-R292-<br>T201-C278-R263-R295-Q208-Q211-D209-L229-L235-F201-TEL LINE |
| Ringing/Alarm/ Beep/Key tones | {IC604(V9)-C761-R761-CN616(11)}-CN202(18)-C214-R221-IC201(27-35)-R233-C242-IC203(4-5,8)-<br>SPEAKER |
| CNG/DTMF detection (ON-HOOK)<br>CALLER ID | TEL LINE-T202-C217-R223-IC201(20-31)-CN202(4)-{CN616(25)-L666-C723-R707-IC609(13-22)-<br>IC604(P1) |
| CNG/DTMF detection (OFF-HOOK)<br>FAX Rx | TEL LINE-F201-L235-L229-D209-Q211-Q208-R295-R263-C278-T201-R277-R269-C285-IC207<br>(6-7)-LPF-C266-R247-C244-R234-L207-IC201(23-31)-CN202(4)-{CN616(25)-L666-C723-R707-<br>IC609(13-22)-IC604(P1) |

**Note: { }: Inside the digital board**

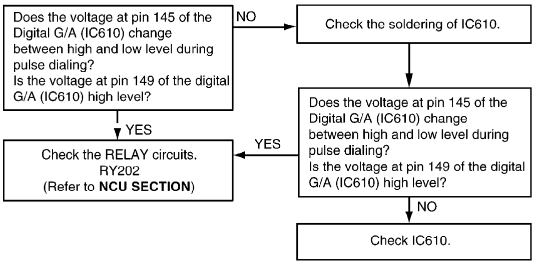
### 6.5.13.2. DEFECTIVE ITS (Integrated Telephone System) SECTION

**1. No handset and speakerphone transmission / reception**

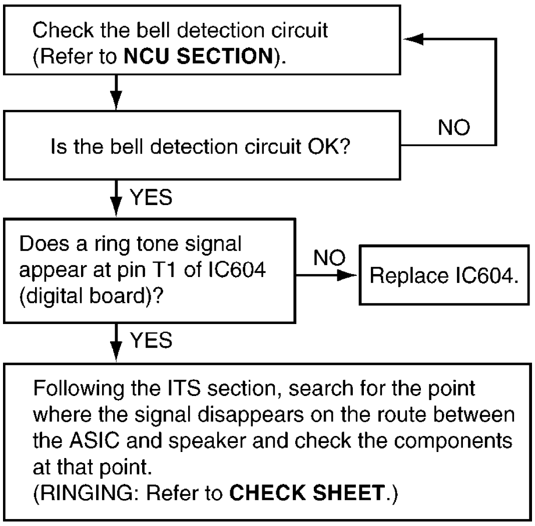
**Perform a signal test in the ITS or the NCU section and locate a defective point (where the signal disappears) on each route between the handset microphone and telephone line (sending), or between the telephone line and the handset speaker (receiving), or between the microphone and**

**the telephone line (sending), or between the telephone line and the speaker (receiving). Check the components at that point. CHECK SHEET() is useful for this investigation.**

## 2. No pulse dialing

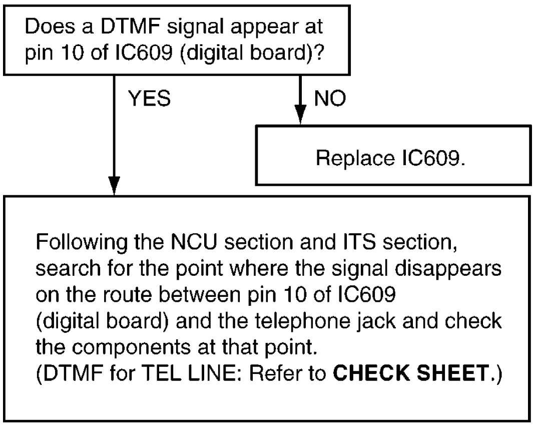

Does the voltage at pin 145 of the Digital G/A (IC610) change between high and low level during pulse dialing?
Is the voltage at pin 149 of the digital G/A (IC610) high level?
NO
Check the soldering of IC610.
YES
Check the RELAY circuits.
RY202
(Refer to NCU SECTION)
YES
Does the voltage at pin 145 of the Digital G/A (IC610) change between high and low level during pulse dialing?
Is the voltage at pin 149 of the digital G/A (IC610) high level?
NO
Check IC610.

## 3. No ring tone (or No bell)


Check the bell detection circuit
(Refer to NCU SECTION).
Is the bell detection circuit OK?
NO
YES
Does a ring tone signal appear at pin T1 of IC604 (digital board)?
NO
Replace IC604.
YES
Following the ITS section, search for the point where the signal disappears on the route between the ASIC and speaker and check the components at that point.
(RINGING: Refer to CHECK SHEET.)

**CROSS REFERENCE:**
**CHECK SHEET ()**
**NCU SECTION ()**

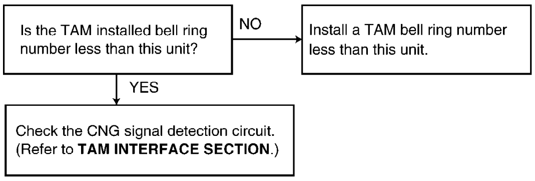
## 4. No tone dialing


Does a DTMF signal appear at pin 10 of IC609 (digital board)?
YES
NO
Replace IC609.
Following the NCU section and ITS section, search for the point where the signal disappears on the route between pin 10 of IC609 (digital board) and the telephone jack and check the components at that point.
(DTMF for TEL LINE: Refer to CHECK SHEET.)

**CROSS REFERENCE:**
**CHECK SHEET ()**

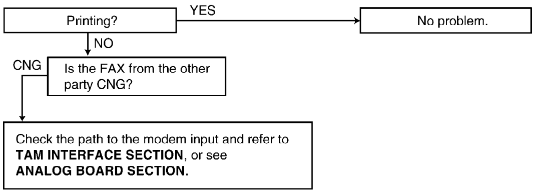
### 6.5.13.3. DETECTIVE TAM INTERFACE SECTION

## 1. The FAX turns on, but does not arrive through TAM.


Is the TAM installed bell ring number less than this unit?
NO
Install a TAM bell ring number less than this unit.
YES
Check the CNG signal detection circuit.
(Refer to TAM INTERFACE SECTION.)

**CROSS REFERENCE:**
**TAM INTERFACE SECTION ()**

## 2. A FAX is received, but won't switch from TAM to FAX.

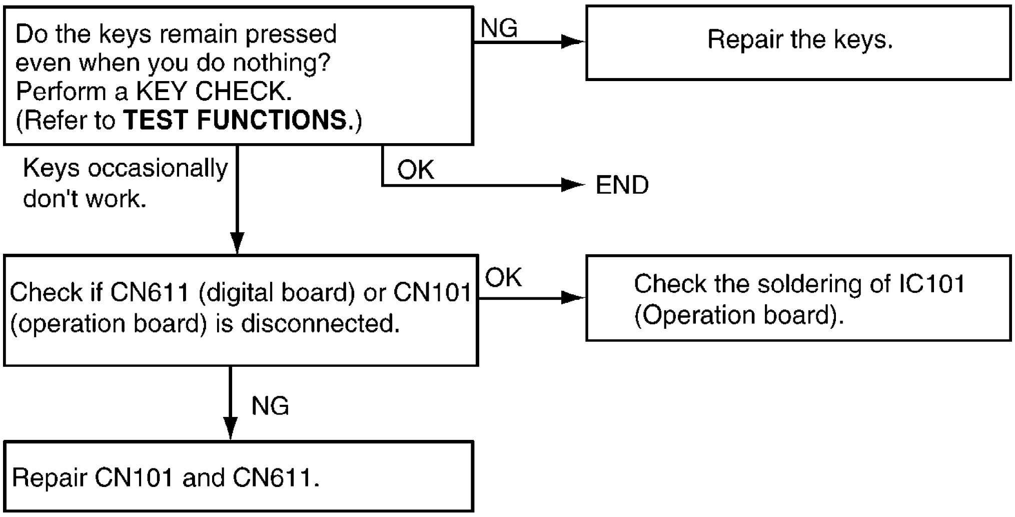

Printing?
YES
No problem.
NO
CNG
Is the FAX from the other party CNG?
Check the path to the modem input and refer to TAM INTERFACE SECTION, or see ANALOG BOARD SECTION.

**CROSS REFERENCE:**
**ANALOG BOARD SECTION ()**
**TAM INTERFACE SECTION ()**

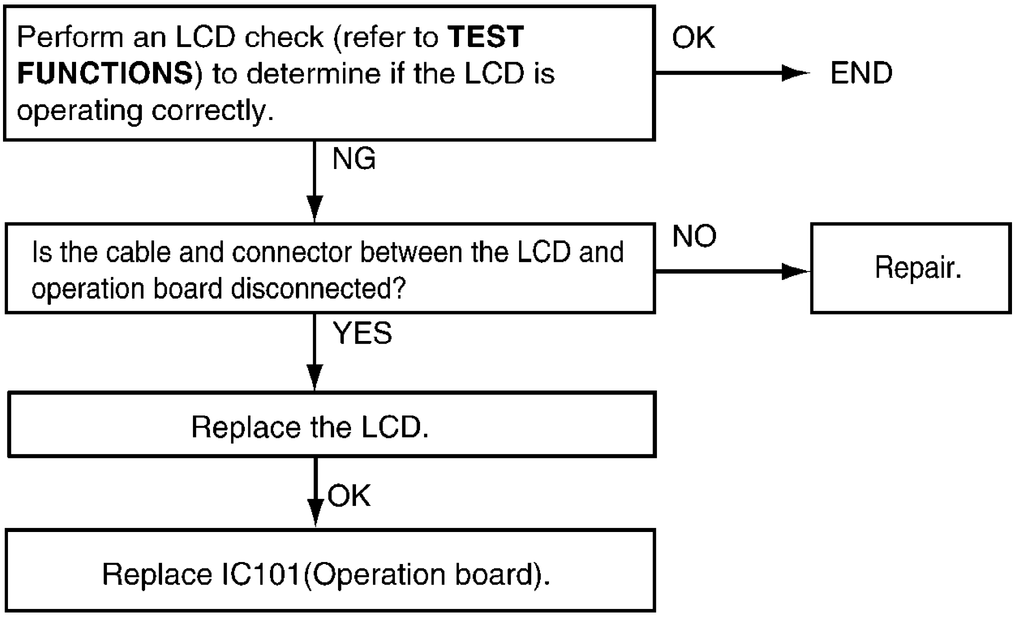
### 6.5.13.4. OPERATION PANEL SECTION

**Refer to TEST FUNCTIONS ().**

**1. NO KEY OPERATION**


Do the keys remain pressed even when you do nothing? Perform a KEY CHECK. (Refer to TEST FUNCTIONS.)
NG
Repair the keys.
Keys occasionally don't work.
OK
END
Check if CN611 (digital board) or CN101 (operation board) is disconnected.
OK
Check the soldering of IC101 (Operation board).
NG
Repair CN101 and CN611.

2. NO LCD INDICATION

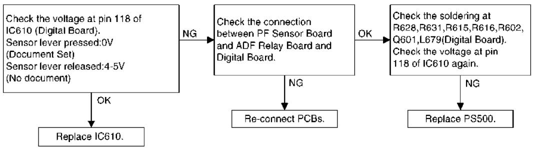

Perform an LCD check (refer to TEST FUNCTIONS) to determine if the LCD is operating correctly.
OK
END
NG
Is the cable and connector between the LCD and operation board disconnected?
NO
Repair.
YES
Replace the LCD.
OK
Replace IC101(Operation board).

**CROSS REFERENCE:**
**TEST FUNCTIONS ()**

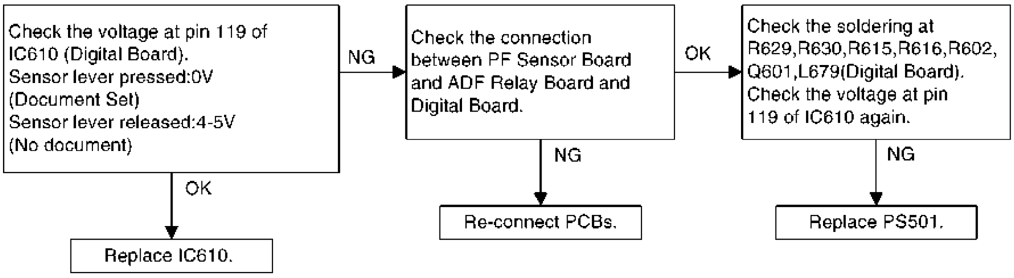
### 6.5.13.5. SENSOR SECTION

**Refer to SENSORS AND SWITCHES for the circuit description.**
**Perform an SENSOR CHECK to determine if the sensor is operating correctly.**

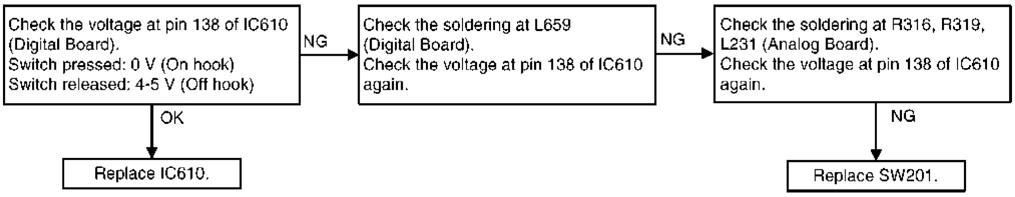
**1. Check the document sensor.......... “CHECK DOCUMENT”**


Check the voltage at pin 118 of IC610 (Digital Board). Sensor lever pressed:0V (Document Set) Sensor lever released:4-5V (No document)
NG
Check the connection between PF Sensor Board and ADF Relay Board and Digital Board.
OK
Check the soldering at R628,R631,R615,R616,R602, Q601,L679(Digital Board). Check the voltage at pin 118 of IC610 again.
OK
Replace IC610.
NG
Re-connect PCBs.
NG
Replace PS500.

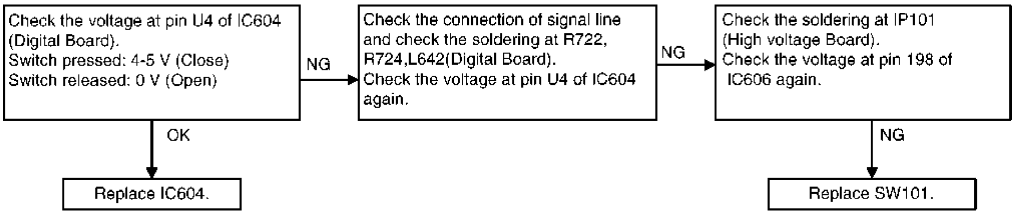
## 2. Check the paper feed sensor.......... “REMOVE DOCUMENT”


Check the voltage at pin 119 of IC610 (Digital Board). Sensor lever pressed:0V (Document Set) Sensor lever released:4-5V (No document)
NG
Check the connection between PF Sensor Board and ADF Relay Board and Digital Board.
OK
Check the soldering at R629,R630,R615,R616,R602, Q601,L679(Digital Board). Check the voltage at pin 119 of IC610 again.
OK
Replace IC610.
NG
Re-connect PCBs.
NG
Replace PS501.

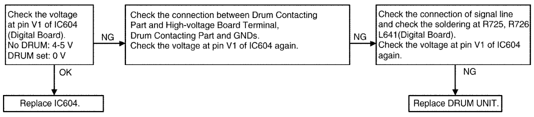
## 3. Check the hook switch


Check the voltage at pin 138 of IC610 (Digital Board). Switch pressed: 0 V (On hook) Switch released: 4-5 V (Off hook)
NG
Check the soldering at L659 (Digital Board). Check the voltage at pin 138 of IC610 again.
NG
Check the soldering at R316, R319, L231 (Analog Board). Check the voltage at pin 138 of IC610 again.
OK
Replace IC610.
NG
Replace SW201.

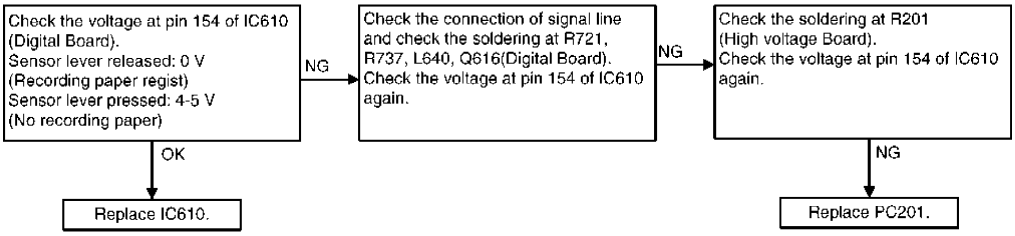
## 4. Check the cover open switch.......... “COVER OPEN”


Check the voltage at pin U4 of IC604 (Digital Board). Switch pressed: 4-5 V (Close) Switch released: 0 V (Open)
NG
Check the connection of signal line and check the soldering at R722, R724,L642(Digital Board). Check the voltage at pin U4 of IC604 again.
NG
Check the soldering at IP101 (High voltage Board). Check the voltage at pin 198 of IC606 again.
OK
Replace IC604.
NG
Replace SW101.

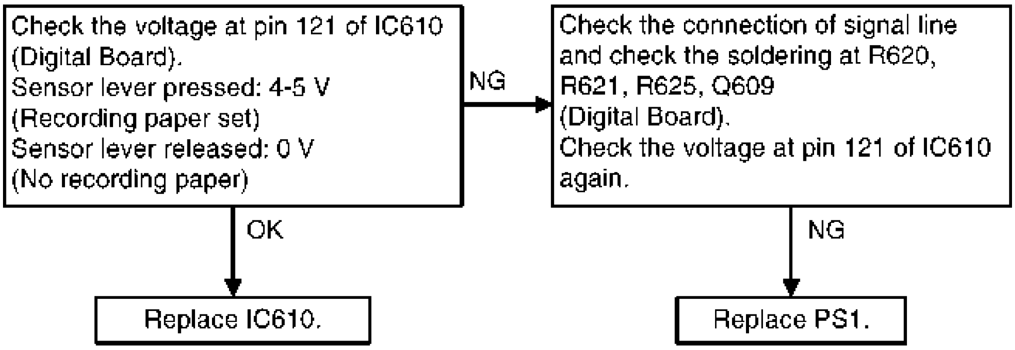
## 5. Check the DRUM sensor.......... “CHECK DRUM”


Check the voltage at pin V1 of IC604 (Digital Board). No DRUM: 4-5 V DRUM set: 0 V
NG
Check the connection between Drum Contacting Part and High-voltage Board Terminal, Drum Contacting Part and GNDs. Check the voltage at pin V1 of IC604 again.
NG
Check the connection of signal line and check the soldering at R725, R726 L641(Digital Board). Check the voltage at pin V1 of IC604 again.
OK
Replace IC604.
NG
Replace DRUM UNIT.

## 6. Check the regist sensor.......... “FAILED PICKUP”


Check the voltage at pin 154 of IC610 (Digital Board). Sensor lever released: 0 V (Recording paper regist) Sensor lever pressed: 4-5 V (No recording paper)
NG
Check the connection of signal line and check the soldering at R721, R737, L640, Q616(Digital Board). Check the voltage at pin 154 of IC610 again.
NG
Check the soldering at R201 (High voltage Board). Check the voltage at pin 154 of IC610 again.
OK
Replace IC610.
NG
Replace PC201.

## 7. Check the paper sensor.......... “OUT OF PAPER”

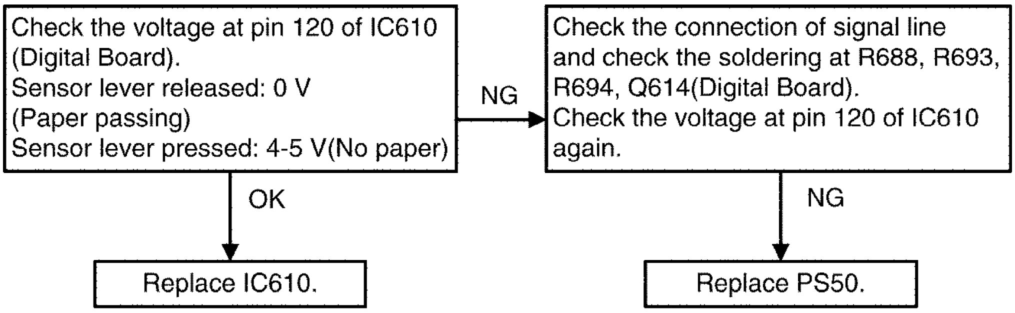

Check the voltage at pin 121 of IC610 (Digital Board).
Sensor lever pressed: 4-5 V
(Recording paper set)
Sensor lever released: 0 V
(No recording paper)

Check the connection of signal line and check the soldering at R620, R621, R625, Q609 (Digital Board).
Check the voltage at pin 121 of IC610 again.

Replace IC610.

Replace PS1.

### 8. Check the exit switch.......... “PAPER JAMED”


Check the voltage at pin 120 of IC610 (Digital Board).
Sensor lever released: 0 V
(Paper passing)
Sensor lever pressed: 4-5 V(No paper)

Check the connection of signal line and check the soldering at R688, R693, R694, Q614(Digital Board).
Check the voltage at pin 120 of IC610 again.

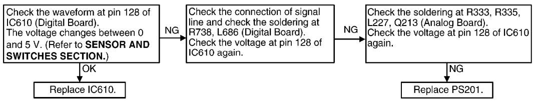
Replace IC610.

Replace PS50.

### 9. Check the toner sensor.......... “TONER LOW”, “CHECK TONER”

**Note:**

**As for the following check, remove the drum from the main body, set it again and close the cover, then perform that check during initializing operation. Refer to SENSORS AND SWITCHES SECTION ().**


Check the waveform at pin 128 of IC610 (Digital Board).
The voltage changes between 0 and 5 V. (Refer to **SENSOR AND SWITCHES SECTION.**)

Check the connection of signal line and check the soldering at R738, L686 (Digital Board).
Check the voltage at pin 128 of IC610 again.

Check the soldering at R333, R335, L227, Q213 (Analog Board).
Check the voltage at pin 128 of IC610 again.

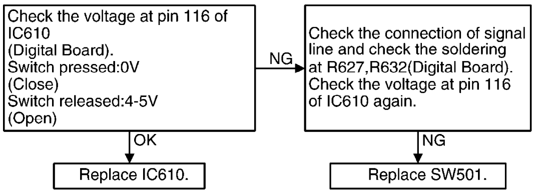
Replace IC610.

Replace PS201.

**CROSS REFERENCE:**

**SENSORS AND SWITCHES SECTION ()**

### 10. Check the ADF cover open switch

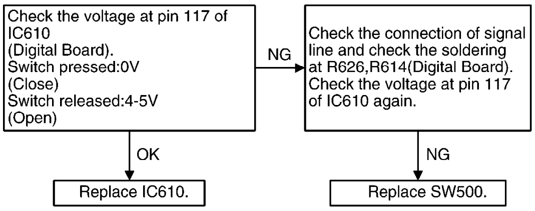

Check the voltage at pin 116 of IC610
(Digital Board).
Switch pressed:0V
(Close)
Switch released:4-5V
(Open)

Check the connection of signal line and check the soldering at R627,R632(Digital Board).
Check the voltage at pin 116 of IC610 again.

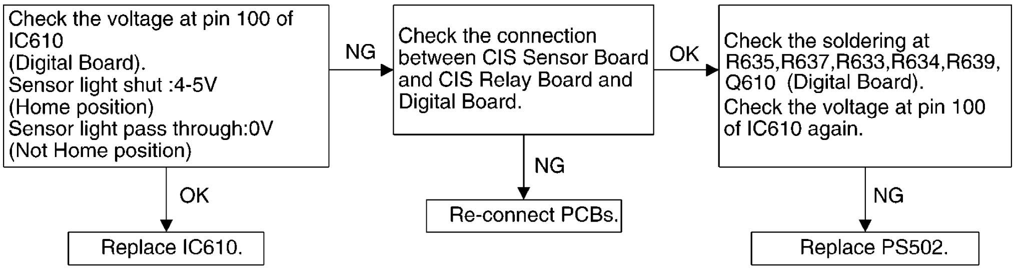
Replace IC610.

Replace SW501.

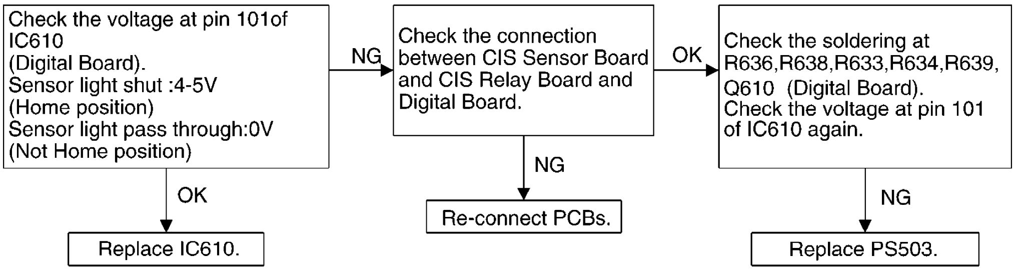
### 11. Check the FB cover open switch


Check the voltage at pin 117 of IC610 (Digital Board). Switch pressed:0V (Close) Switch released:4-5V (Open)
NG
Check the connection of signal line and check the soldering at R626,R614(Digital Board). Check the voltage at pin 117 of IC610 again.
OK
Replace IC610.
NG
Replace SW500.

## 12. Check the CIS position sensor (ADF Home side)

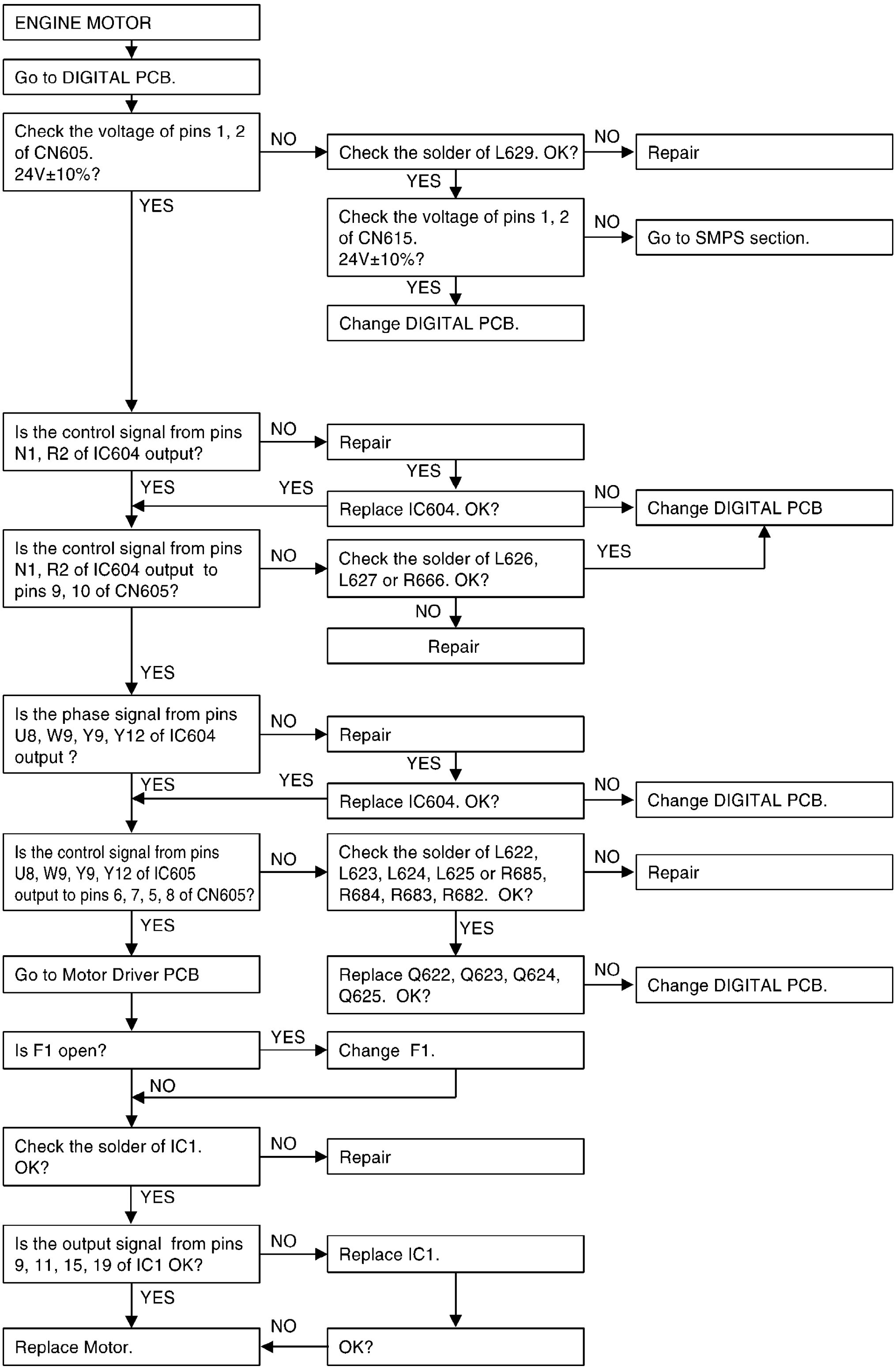

Check the voltage at pin 100 of IC610 (Digital Board). Sensor light shut :4-5V (Home position) Sensor light pass through:0V (Not Home position)
NG
Check the connection between CIS Sensor Board and CIS Relay Board and Digital Board.
OK
Check the soldering at R635,R637,R633,R634,R639, Q610 (Digital Board). Check the voltage at pin 100 of IC610 again.
OK
Replace IC610.
NG
Re-connect PCBs.
NG
Replace PS502.

## 13. Check the CIS position sensor (FB Home side)

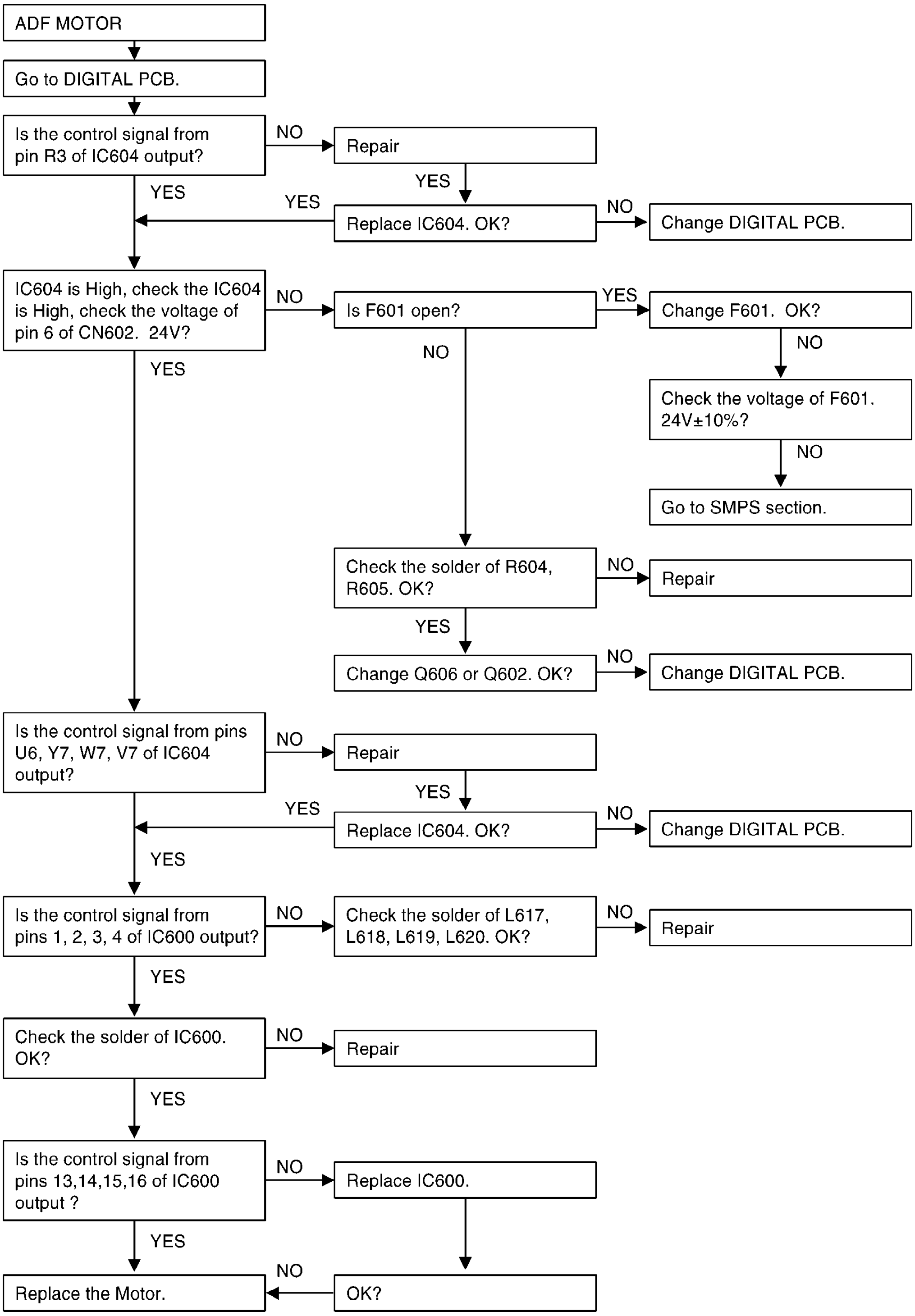

Check the voltage at pin 101of IC610 (Digital Board). Sensor light shut :4-5V (Home position) Sensor light pass through:0V (Not Home position)
NG
Check the connection between CIS Sensor Board and CIS Relay Board and Digital Board.
OK
Check the soldering at R636,R638,R633,R634,R639, Q610 (Digital Board). Check the voltage at pin 101 of IC610 again.
OK
Replace IC610.
NG
Re-connect PCBs.
NG
Replace PS503.

### 6.5.13.6. MOTOR SECTION

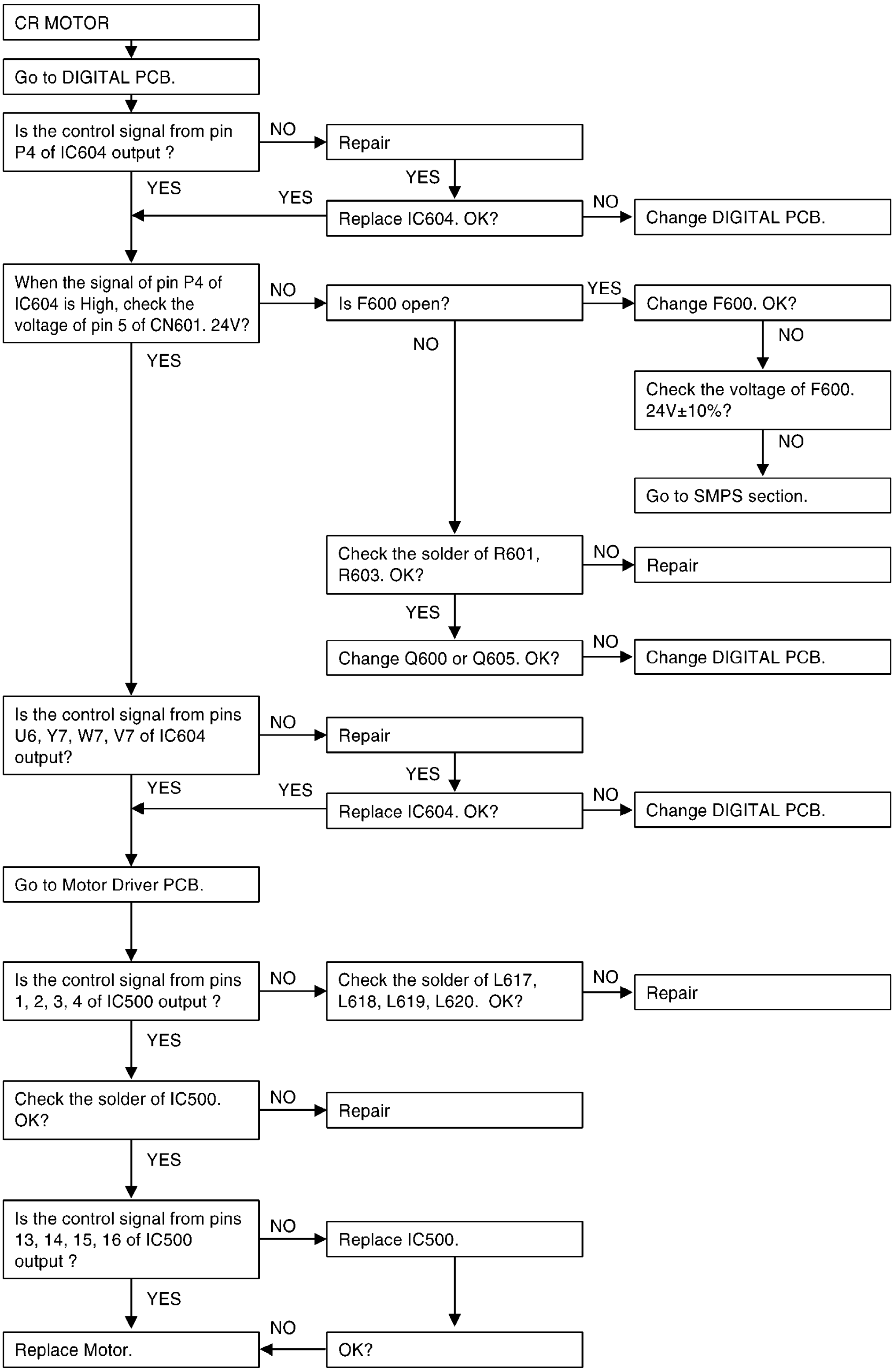
### 6.5.13.6.1. ENGINE MOTOR


ENGINE MOTOR
Go to DIGITAL PCB.
Check the voltage of pins 1, 2 of CN605. 24V±10%?
NO
Check the solder of L629. OK?
NO
Repair
YES
Check the voltage of pins 1, 2 of CN615. 24V±10%?
NO
Go to SMPS section.
YES
Change DIGITAL PCB.
YES
Is the control signal from pins N1, R2 of IC604 output?
NO
Repair
YES
Replace IC604. OK?
NO
Change DIGITAL PCB
YES
YES
Is the control signal from pins N1, R2 of IC604 output to pins 9, 10 of CN605?
NO
Check the solder of L626, L627 or R666. OK?
YES
NO
Repair
YES
Is the phase signal from pins U8, W9, Y9, Y12 of IC604 output ?
NO
Repair
YES
Replace IC604. OK?
NO
Change DIGITAL PCB.
YES
YES
Is the control signal from pins U8, W9, Y9, Y12 of IC605 output to pins 6, 7, 5, 8 of CN605?
NO
Check the solder of L622, L623, L624, L625 or R685, R684, R683, R682. OK?
NO
Repair
YES
Replace Q622, Q623, Q624, Q625. OK?
NO
Change DIGITAL PCB.
YES
Go to Motor Driver PCB
Is F1 open?
YES
Change F1.
NO
Check the solder of IC1. OK?
NO
Repair
YES
Is the output signal from pins 9, 11, 15, 19 of IC1 OK?
NO
Replace IC1.
YES
Replace Motor.
NO
OK?

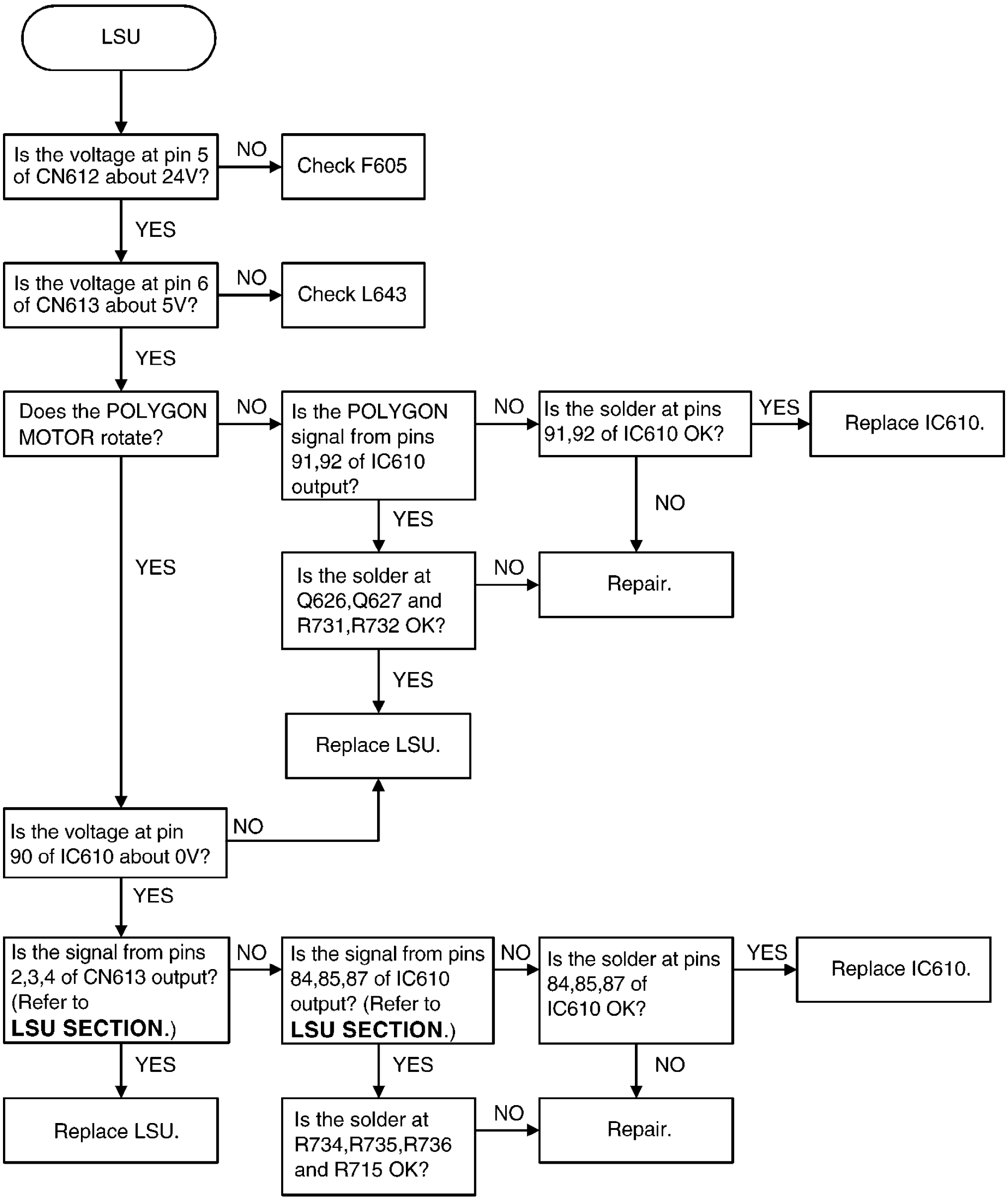
### 6.5.13.6.2. ADF MOTOR


ADF MOTOR
Go to DIGITAL PCB.
Is the control signal from pin R3 of IC604 output?
NO
Repair
YES
YES
YES
Replace IC604. OK?
NO
Change DIGITAL PCB.
IC604 is High, check the IC604 is High, check the voltage of pin 6 of CN602. 24V?
NO
Is F601 open?
YES
Change F601. OK?
NO
NO
Check the voltage of F601. 24V±10%?
NO
Go to SMPS section.
YES
Check the solder of R604, R605. OK?
NO
Repair
YES
Change Q606 or Q602. OK?
NO
Change DIGITAL PCB.
Is the control signal from pins U6, Y7, W7, V7 of IC604 output?
NO
Repair
YES
YES
Replace IC604. OK?
NO
Change DIGITAL PCB.
YES
Is the control signal from pins 1, 2, 3, 4 of IC600 output?
NO
Check the solder of L617, L618, L619, L620. OK?
NO
Repair
YES
Check the solder of IC600. OK?
NO
Repair
YES
Is the control signal from pins 13,14,15,16 of IC600 output ?
NO
Replace IC600.
YES
Replace the Motor.
NO
OK?

### 6.5.13.6.3. CR MOTOR


CR MOTOR
Go to DIGITAL PCB.
Is the control signal from pin P4 of IC604 output ?
NO
Repair
YES
Replace IC604. OK?
NO
Change DIGITAL PCB.
YES
YES
When the signal of pin P4 of IC604 is High, check the voltage of pin 5 of CN601. 24V?
NO
Is F600 open?
YES
Change F600. OK?
NO
Check the voltage of F600. 24V±10%?
NO
Go to SMPS section.
NO
YES
Check the solder of R601, R603. OK?
NO
Repair
YES
Change Q600 or Q605. OK?
NO
Change DIGITAL PCB.
Is the control signal from pins U6, Y7, W7, V7 of IC604 output?
NO
Repair
YES
Replace IC604. OK?
NO
Change DIGITAL PCB.
YES
YES
Go to Motor Driver PCB.
Is the control signal from pins 1, 2, 3, 4 of IC500 output ?
NO
Check the solder of L617, L618, L619, L620. OK?
NO
Repair
YES
Check the solder of IC500. OK?
NO
Repair
YES
Is the control signal from pins 13, 14, 15, 16 of IC500 output ?
NO
Replace IC500.
YES
Replace Motor.
NO
OK?

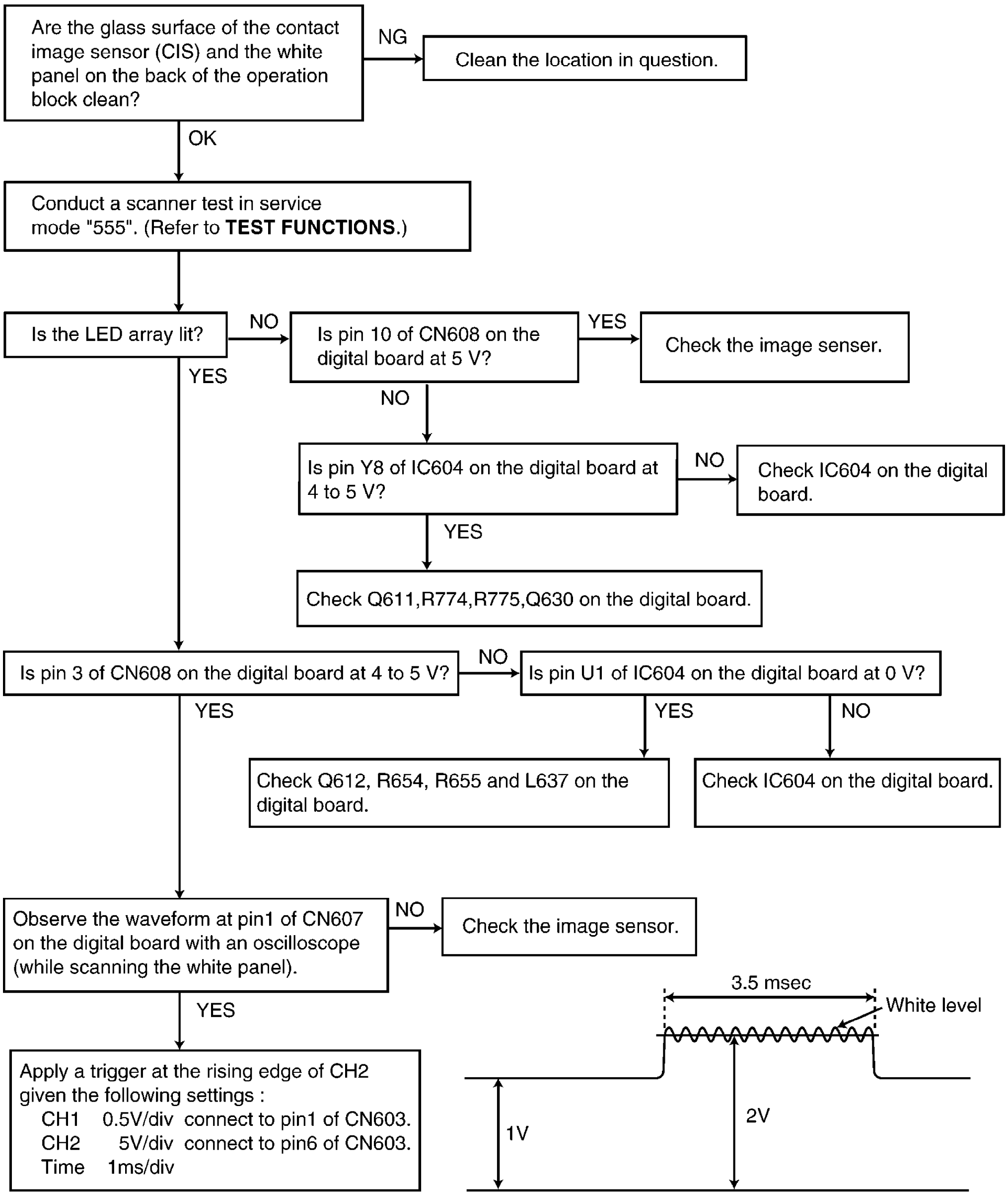
### 6.5.13.7. LSU SECTION


LSU
Is the voltage at pin 5 of CN612 about 24V?
NO
Check F605
YES
Is the voltage at pin 6 of CN613 about 5V?
NO
Check L643
YES
Does the POLYGON MOTOR rotate?
NO
Is the POLYGON signal from pins 91,92 of IC610 output?
NO
Is the solder at pins 91,92 of IC610 OK?
YES
Replace IC610.
NO
YES
Is the solder at Q626,Q627 and R731,R732 OK?
NO
Repair.
YES
Replace LSU.
YES
Is the voltage at pin 90 of IC610 about 0V?
NO
YES
Is the signal from pins 2,3,4 of CN613 output? (Refer to LSU SECTION.)
NO
Is the signal from pins 84,85,87 of IC610 output? (Refer to LSU SECTION.)
NO
Is the solder at pins 84,85,87 of IC610 OK?
YES
Replace IC610.
YES
Replace LSU.
YES
Is the solder at R734,R735,R736 and R715 OK?
NO
Repair.
NO

**CROSS REFERENCE:**

LSU (Laser Scanning Unit) SECTION ()

### 6.5.14. CIS (Contact Image Sensor) SECTION


Are the glass surface of the contact image sensor (CIS) and the white panel on the back of the operation block clean?
NG
Clean the location in question.
OK
Conduct a scanner test in service mode "555". (Refer to TEST FUNCTIONS.)
Is the LED array lit?
NO
Is pin 10 of CN608 on the digital board at 5 V?
YES
Check the image senser.
NO
Is pin Y8 of IC604 on the digital board at 4 to 5 V?
NO
Check IC604 on the digital board.
YES
Check Q611,R774,R775,Q630 on the digital board.
YES
Is pin 3 of CN608 on the digital board at 4 to 5 V?
NO
Is pin U1 of IC604 on the digital board at 0 V?
YES
NO
Check Q612, R654, R655 and L637 on the digital board.
Check IC604 on the digital board.
YES
Observe the waveform at pin1 of CN607 on the digital board with an oscilloscope (while scanning the white panel).
NO
Check the image sensor.
YES
Apply a trigger at the rising edge of CH2 given the following settings :
CH1 0.5V/div connect to pin1 of CN603.
CH2 5V/div connect to pin6 of CN603.
Time 1ms/div
3.5 msec
White level
1V
2V

**CROSS REFERENCE:**

TEST FUNCTIONS ()

### 6.5.15. HIGH VOLTAGE VALUE CHECK POINT

**Measurement Procedure**

**1. Open the TOP cover.**

**2. Remove the developing unit, if it is equipped.**

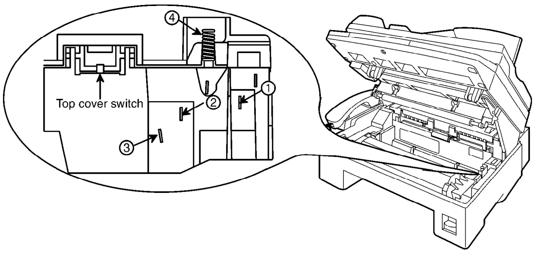
**3. Open the TOP cover, and turn ON the TOP cover SW.**
**(Push the TOP cover SW with a sharp-tipped insulator or insert folded paper, etc. to the slit.)**

4. **The unit enters the service mode when the TOP cover is open, then push *628.**
   **(Don't push the START button.)**
5. **Touch the output terminals under test with the high voltage probes.**
6. **Push the START button.**
   **(This causes to output high voltage from each terminal, so be careful not to touch them. The sound “Pi Pi Pi” warns that the high voltage is outputting.)**
7. **When the measurement is finished, push the STOP button.**
   **(The high voltage output is stopped.)**
8. **Repeat the items No. 5~7 until the measurement is finished.**
9. **When the measurement is finished, turn OFF the TOP cover SW.**

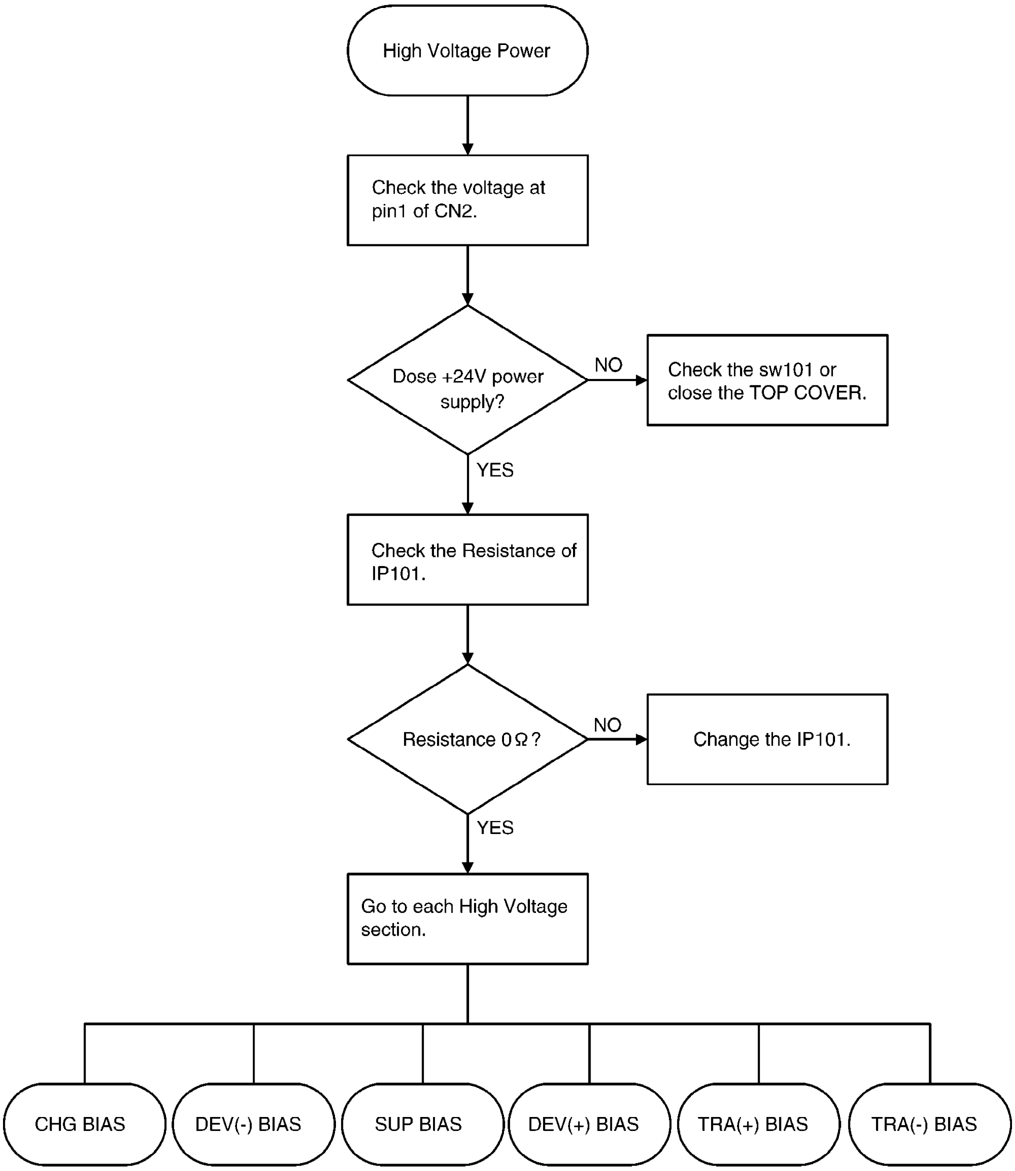
**Output voltage of each terminal**

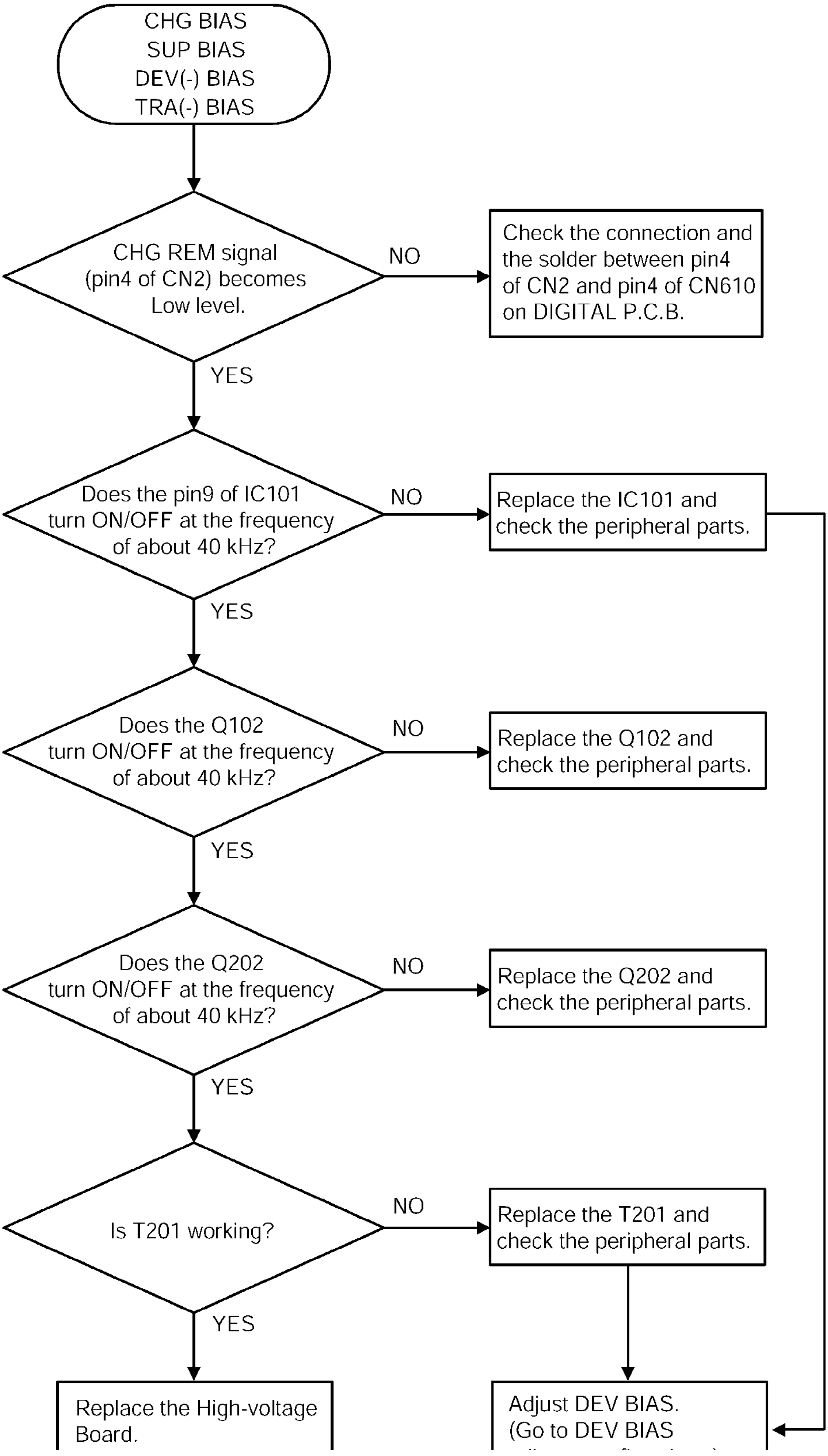
| No. | BIAS Name | Specified output voltage | The range of specified output vo |
|---|---|---|---|
| ① | CHG (Charge) | -1200V | -1200V± 35V |
| ② | DEV (Developing) | -350V | -350V± 15V |
| ③ | SUP (Supply) | -550V | -550V± 50V |
| ④ | TRA (Transfer) | -1200V | -1200V± 100V |

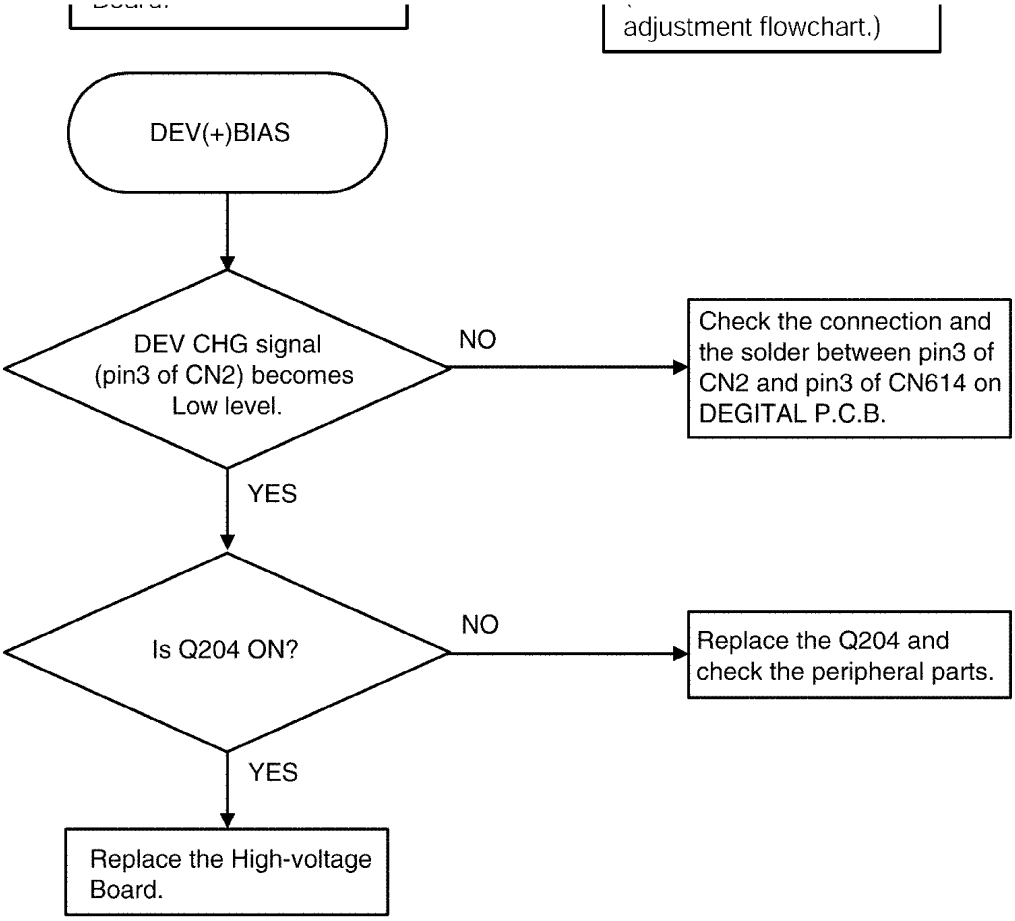
*** As for the High Voltage test equipment, FLUKE 85 (MULTIMETER)+ HIOKI (HV PROBE 9014) or the equivalent should be used.**

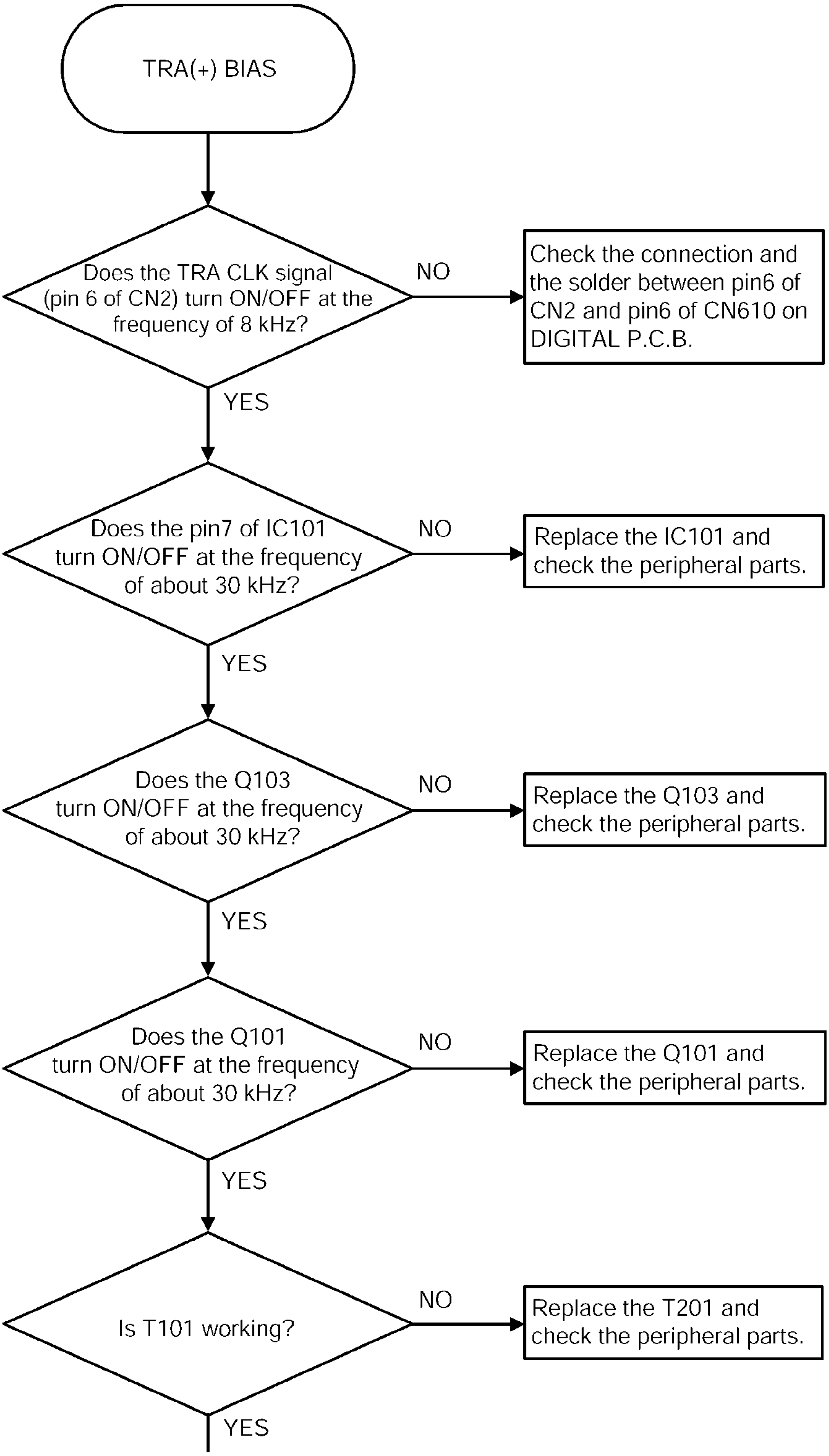


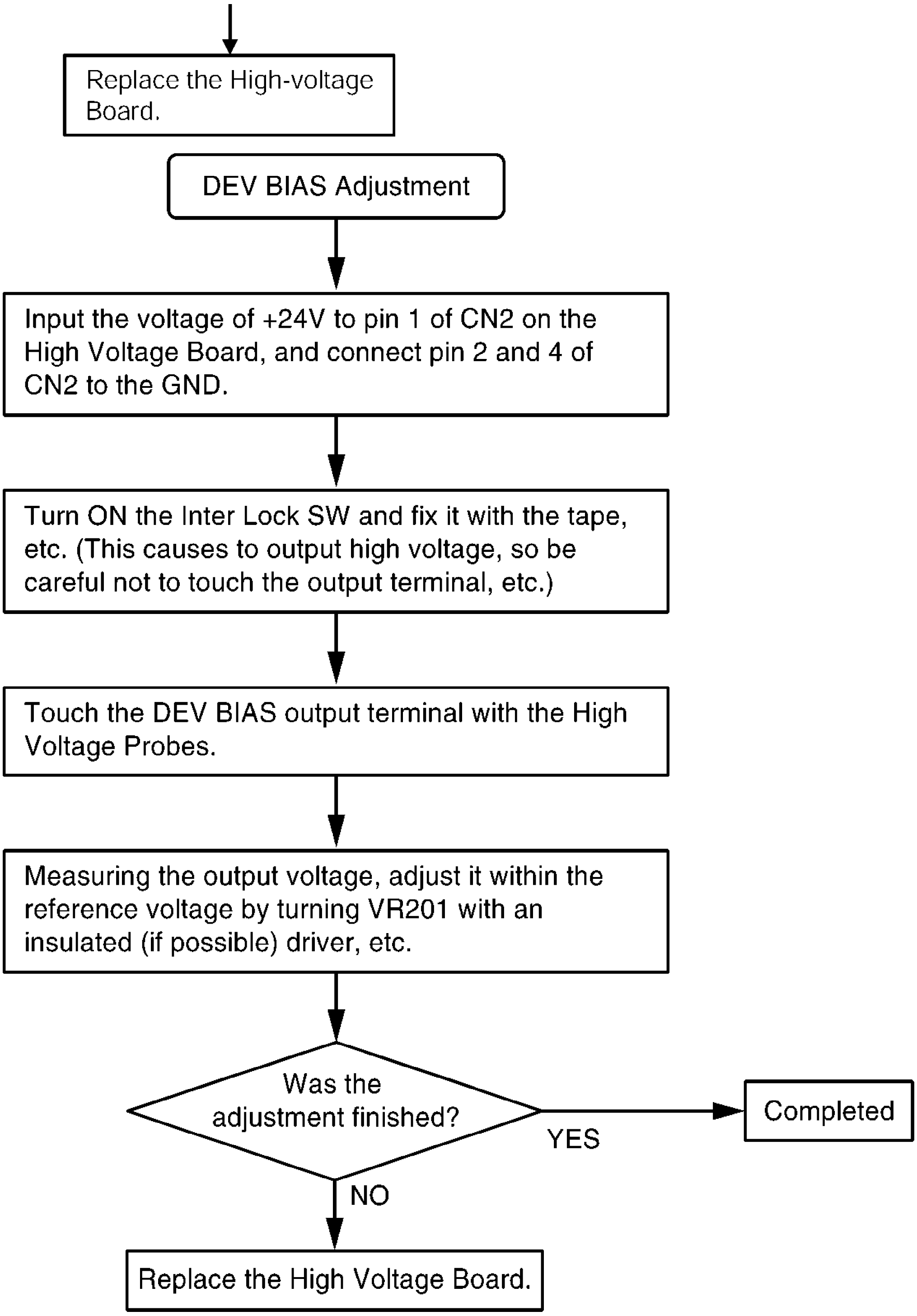
## 6.5.16. HIGH VOLTAGE SECTION


High Voltage Power
Check the voltage at pin1 of CN2.
Dose +24V power supply?
NO
Check the sw101 or close the TOP COVER.
YES
Check the Resistance of IP101.
Resistance 0Ω?
NO
Change the IP101.
YES
Go to each High Voltage section.
CHG BIAS
DEV(-) BIAS
SUP BIAS
DEV(+) BIAS
TRA(+) BIAS
TRA(-) BIAS


CHG BIAS
SUP BIAS
DEV(-) BIAS
TRA(-) BIAS
CHG REM signal (pin4 of CN2) becomes Low level.
NO
Check the connection and the solder between pin4 of CN2 and pin4 of CN610 on DIGITAL P.C.B.
YES
Does the pin9 of IC101 turn ON/OFF at the frequency of about 40 kHz?
NO
Replace the IC101 and check the peripheral parts.
YES
Does the Q102 turn ON/OFF at the frequency of about 40 kHz?
NO
Replace the Q102 and check the peripheral parts.
YES
Does the Q202 turn ON/OFF at the frequency of about 40 kHz?
NO
Replace the Q202 and check the peripheral parts.
YES
Is T201 working?
NO
Replace the T201 and check the peripheral parts.
YES
Replace the High-voltage Board.
Adjust DEV BIAS.
(Go to DEV BIAS


adjustment flowchart.)
DEV(+)BIAS
DEV CHG signal (pin3 of CN2) becomes Low level.
NO
Check the connection and the solder between pin3 of CN2 and pin3 of CN614 on DEGITAL P.C.B.
YES
Is Q204 ON?
NO
Replace the Q204 and check the peripheral parts.
YES
Replace the High-voltage Board.


TRA(+) BIAS
Does the TRA CLK signal (pin 6 of CN2) turn ON/OFF at the frequency of 8 kHz?
NO
Check the connection and the solder between pin6 of CN2 and pin6 of CN610 on DIGITAL P.C.B.
YES
Does the pin7 of IC101 turn ON/OFF at the frequency of about 30 kHz?
NO
Replace the IC101 and check the peripheral parts.
YES
Does the Q103 turn ON/OFF at the frequency of about 30 kHz?
NO
Replace the Q103 and check the peripheral parts.
YES
Does the Q101 turn ON/OFF at the frequency of about 30 kHz?
NO
Replace the Q101 and check the peripheral parts.
YES
Is T101 working?
NO
Replace the T201 and check the peripheral parts.
YES


Replace the High-voltage Board.
DEV BIAS Adjustment
Input the voltage of +24V to pin 1 of CN2 on the High Voltage Board, and connect pin 2 and 4 of CN2 to the GND.
Turn ON the Inter Lock SW and fix it with the tape, etc. (This causes to output high voltage, so be careful not to touch the output terminal, etc.)
Touch the DEV BIAS output terminal with the High Voltage Probes.
Measuring the output voltage, adjust it within the reference voltage by turning VR201 with an insulated (if possible) driver, etc.
Was the adjustment finished?
YES
Completed
NO
Replace the High Voltage Board.

*** This Adjustment should be done with a single High Voltage Board.**

*** As for the High Voltage Probe, HV PROBE 9014 of HIOKI electric co. or the equivalent should be used.**

*** As for the tester, FLUKE 85 III multimeter or the equivalent should be used.**

*** Be careful not to touch the terminals during adjustment because the high voltage is used.**

### 6.5.17. POWER SUPPLY BOARD SECTION

### 6.5.17.1. KEY COMPONENTS FOR TROUBLESHOOTING

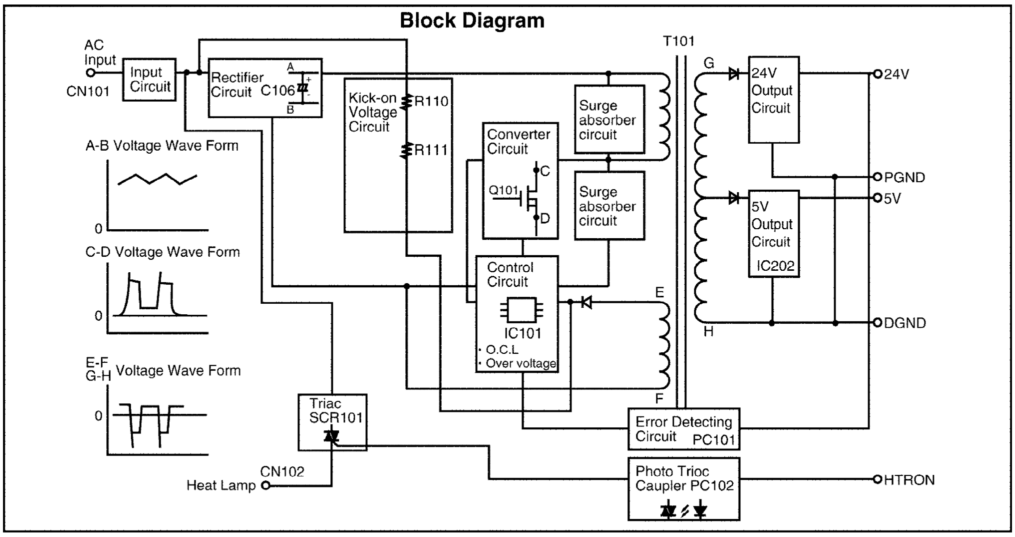
**Check the following parts first: F101, D101-D104, C106, Q101, PC101 and IC101.**
**This comes from our experience with experimental tests. For example: power supply and lightning surge voltage test, withstanding voltage test, intentional short circuit test, etc.**

**Caution:**

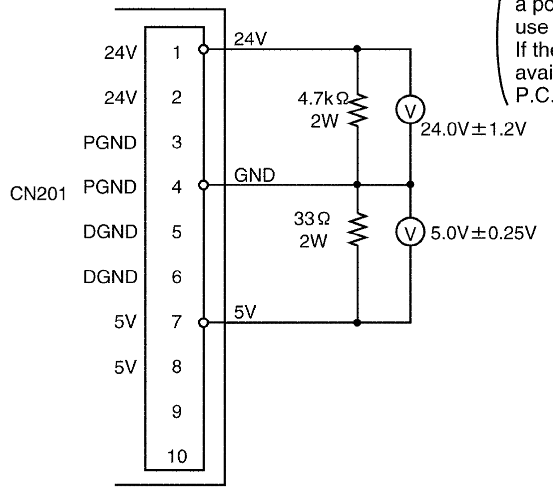
**If you find a melted fuse in the unit, do not turn on the power until you locate and repair the faulty parts (except for the fuse); otherwise the fuse will melt again and you cannot pinpoint the faulty point.**

**In most cases, the symptom is that nothing is output. It is more likely that the fault is in the primary side rather than the secondary side. Check the primary side first.**

**Block Diagram**


AC Input
CN101
Input Circuit
Rectifier Circuit
C106
A
B
Kick-on Voltage Circuit
R110
R111
Converter Circuit
Q101
C
D
Surge absorber circuit
Surge absorber circuit
Control Circuit
IC101
・O.C.L
・Over voltage
T101
G
E
F
H
24V Output Circuit
5V Output Circuit
IC202
24V
PGND
5V
DGND
A-B Voltage Wave Form
C-D Voltage Wave Form
E-F G-H Voltage Wave Form
0
Triac SCR101
CN102
Heat Lamp
Error Detecting Circuit PC101
Photo Trioc Caupler PC102
HTRON

DUMMY LOAD to check voltage


CN201
24V 1
24V 2
PGND 3
PGND 4
DGND 5
DGND 6
5V 7
5V 8
9
10
24V
GND
5V
4.7kΩ 2W
33Ω 2W
V
24.0V±1.2V
V
5.0V±0.25V

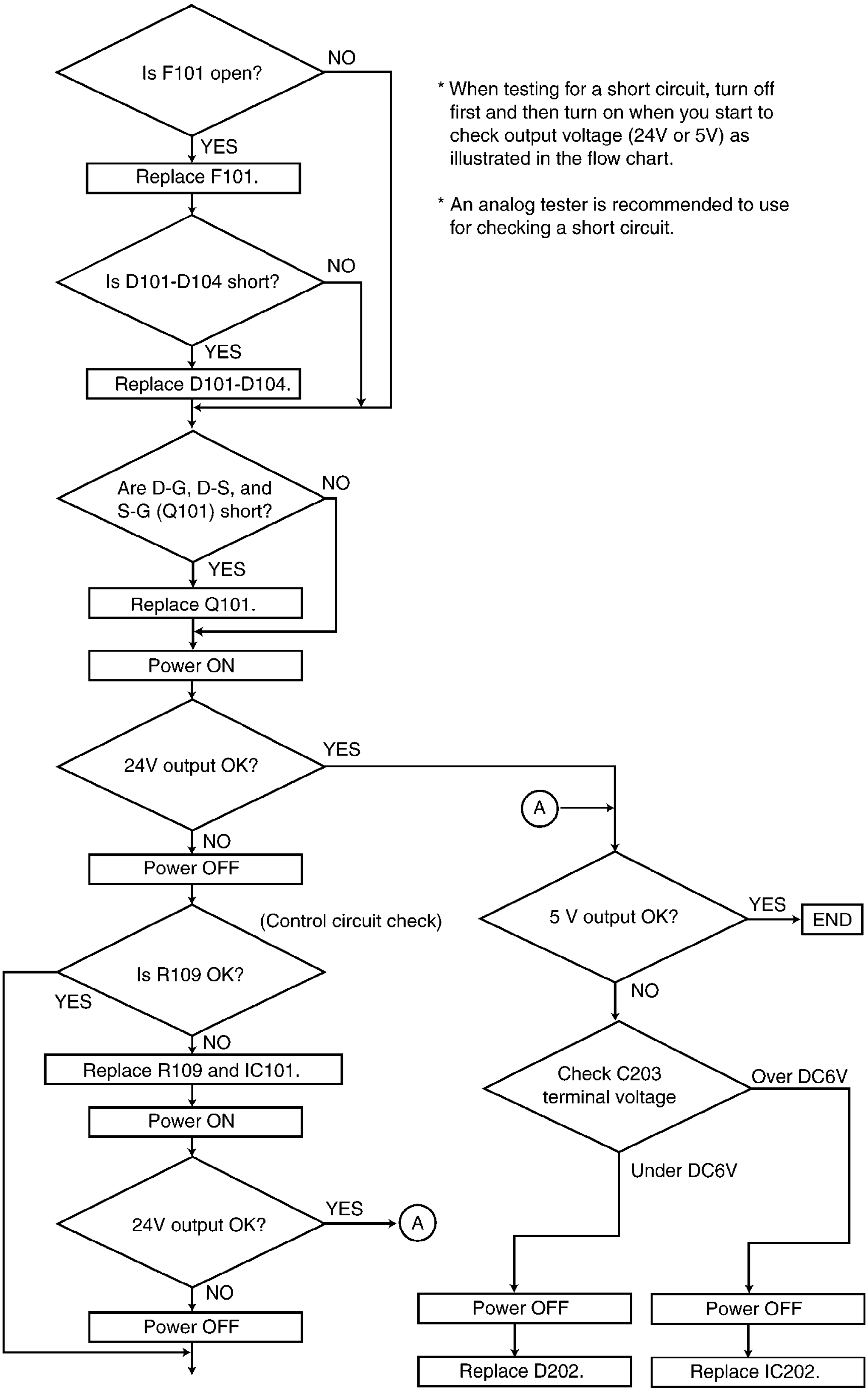
(When you check voltage in a power supply unit alone, use this dummy load. If the dummy load is not available, connect the main P.C.B. to the analog P.C.B.)

Ⓥ: Volt Meter

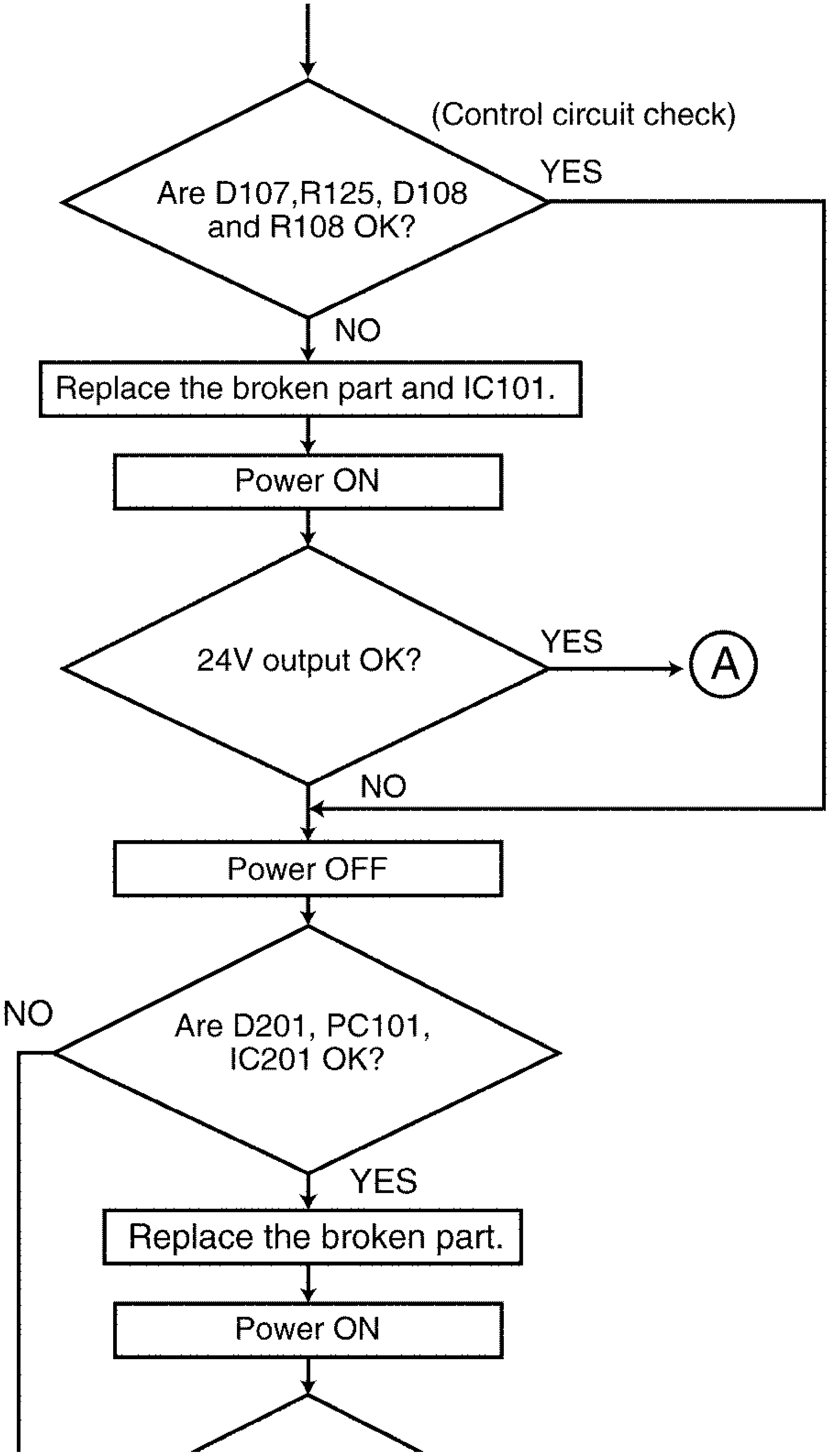
### 6.5.17.2. TROUBLESHOOTING FLOW CHART

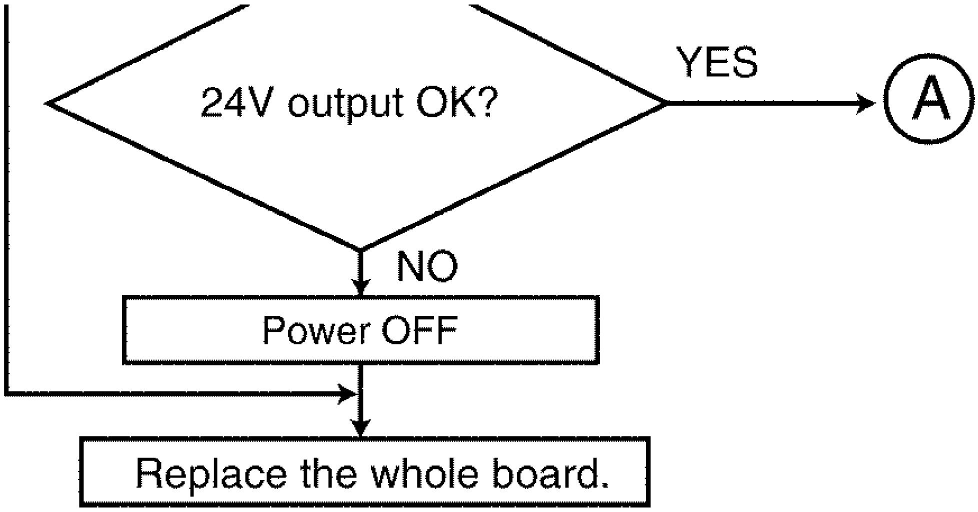
* When testing for a short circuit, turn off first and then turn on when you start to check output voltage (24V or 5V) as illustrated in the flow chart.

* An analog tester is recommended to use for checking a short circuit.



Is F101 open?
NO
YES
Replace F101.
Is D101-D104 short?
NO
YES
Replace D101-D104.
Are D-G, D-S, and S-G (Q101) short?
NO
YES
Replace Q101.
Power ON
24V output OK?
YES
NO
Power OFF
(Control circuit check)
Is R109 OK?
YES
NO
Replace R109 and IC101.
Power ON
24V output OK?
YES
A
NO
Power OFF
A
5 V output OK?
YES
END
NO
Check C203 terminal voltage
Over DC6V
Under DC6V
Power OFF
Replace D202.
Power OFF
Replace IC202.


(Control circuit check)
Are D107,R125, D108 and R108 OK?
YES
NO
Replace the broken part and IC101.
Power ON
24V output OK?
YES
A
NO
Power OFF
NO
Are D201, PC101, IC201 OK?
YES
Replace the broken part.
Power ON



### 6.5.17.3. BROKEN PARTS REPAIR DETAILS

**(D101~D104)**

**Check for a short-circuit in terminal 4. If D101~D104 is short-circuit, F101 will melt (open).**

**In this case, replace all of the parts (D101~D104, F101).**

**(Q101)**

**The worst case of Q101 is a short-circuit between the Drain and Gate because damage expands to the peripheral circuit of Q101.**

**This is due to a very high voltage through the Gate circuit which is composed of R109 and IC101.**

**You should change all of the parts listed as follows.**

**F101, Q101, R109, IC101**

**(D201)**

**If D201 is broken, the oscillation circuit in the power supply cannot operate. Check it with an electric tester.**

# 6.6. PROBLEMS WITH PC SOFTWARE

## 6.6.1. GENERAL

| Problem | Cause & Remedy |
|---|---|
| **I cannot open a TIFF file.** | • You must change the compression format of the file.<br>Example: To convert an image using Imaging for Windows.<br>**1.** Click **[Start]**, point to **[Programs]-[Accessories]**, then click **[Imaging]**.<br>**2.** Open the TIFF file that you cannot open in **[Multi-Function Viewer]**.<br>**3.** Select **[Properties]** from the **[Page]** menu.<br>- The **[Page Properties]** dialog box will appear.<br>**4.** Click the [Compression] tab, then select **[CCITT Group 3 (1d) Modified Huffman]** from the drop-down list.<br>**5.** Click **[OK]**.<br>- The compression format of the file is now changed. |
| **[Launcher]** disappears. | • Look in the tool bar. If you do not find the **[Launcher]** icon, it is closed. If you do find the icon, it is just minimized. Click the icon in the tool bar. |
| **I cannot recognize the last part of an entry in the list of the [One Touch], [Directory], [Journal] or [Caller ID].** | • Put the cursor on the line between the buttons, the cursor changes shape and you can expand the area by dragging or double-clicking. |
| **When I exit Multi-Function Station, the [Multi-Function Viewer] window does not close.** | • The **[Multi-Function Viewer]** window can be operated separately. Click the **[X]** button to close the window. |
| **Multi-Function Station does not work properly.** | • Click the **[X]** button to exit Multi-Function Station, and restart. If Multi-Function Station still does not close, restart the PC.<br>• If you connect the USB cable to USB hub, connect it to the USB port of your computer directly.<br>• Confirm the BIOS setting of your computer. For parallel connection, select ECP, Bi-directional or an equivalent parallel port mode. For USB connection, select USB port mode. Please refer to your PC operating instructions or consult the manufacturer.<br>• If you have any other multifunction softwares installed on your computer, uninstall it. |
| **I want to replace the parallel cable with a USB cable and vice versa.** | • You must change the printer properties.<br>1. Replace the cables.<br>2. Set the connection type (parallel or USB) by using the fax machine according to the cable type you use (feature #15)<br>3. Click **[Start]**, point to **[Settings]**, then click **[Printers]**.<br>4. Right-click **[Panasonic FLM551/FLB751 Series]** and click **[Properties]**.<br>- The **[Panasonic FLM551/FLB751 Series Properties]** dialog box will appear.<br>5. Click the **[Details]** (Windows 98/Me) /**[Ports]** (Windows 2000/XP) tab, select the connection type, then click **[OK]**.<br>- If Multi-Function Station does not work correctly, uninstall the software, then re-install it. |

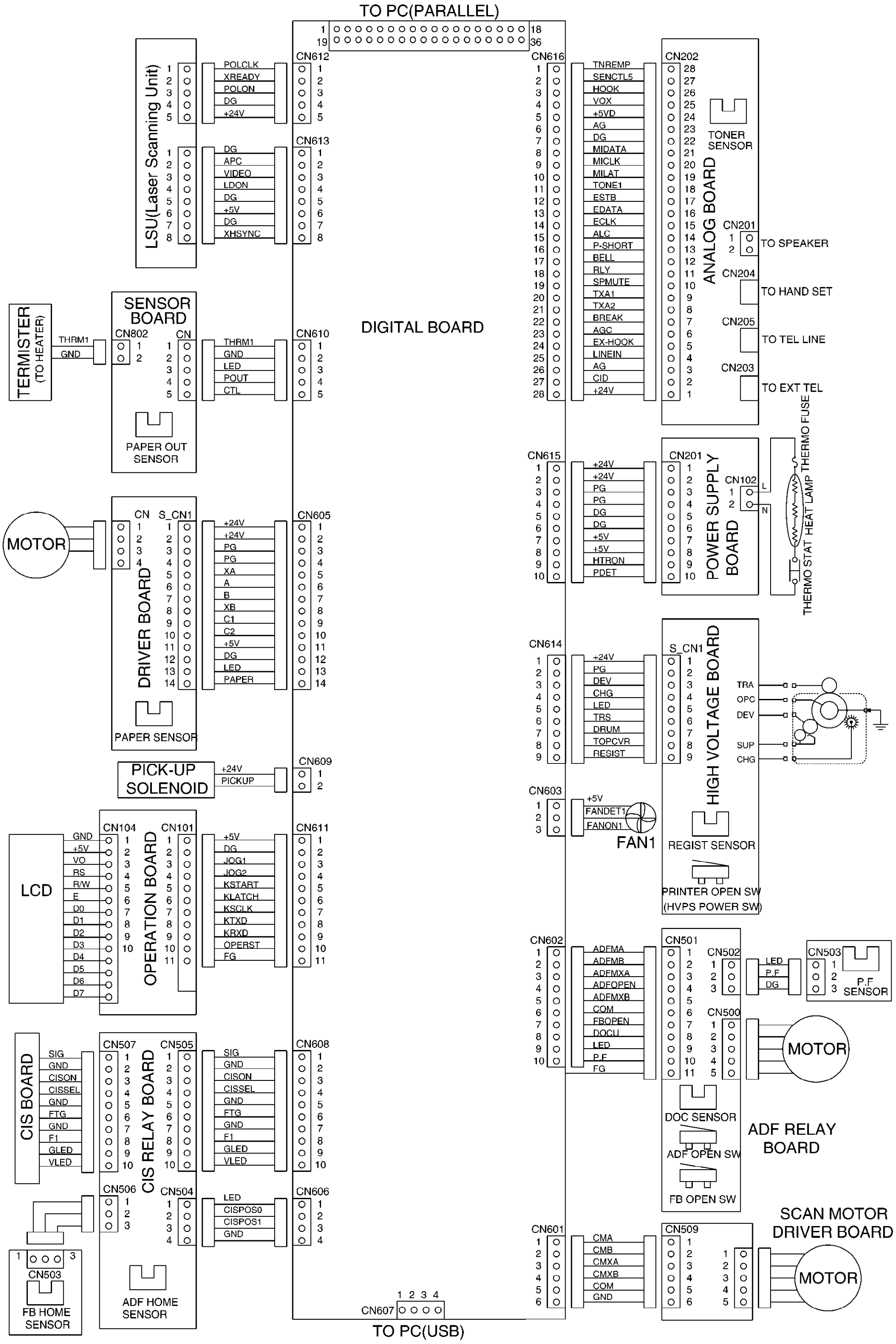
### 6.6.2. SCAN

| Problem | Cause & Remedy |
|---|---|
| **I cannot scan.** | • The fax machine is in use. Try later on.<br>• There is not enough space on the hard disk. Delete unnecessary files and try again.<br>• There is not enough memory. Close some applications and try again.<br>• Restart the PC, and try again.<br>• Check the connection of the PC and the fax machine.<br>• You attempted to scan a document longer than the paper size which you set in the **[Panasonic FLM551/FLB751 Series]** dialog box. Change the setting or divide the document into the appropriate paper size, and try again. |
| **The document does not feed into the fax machine.** | • Remove the document and reinsert it. |
| **Even after clicking [Cancel], scanning continues.** | • Please wait. It may take a while for the cancel request to be accepted. |

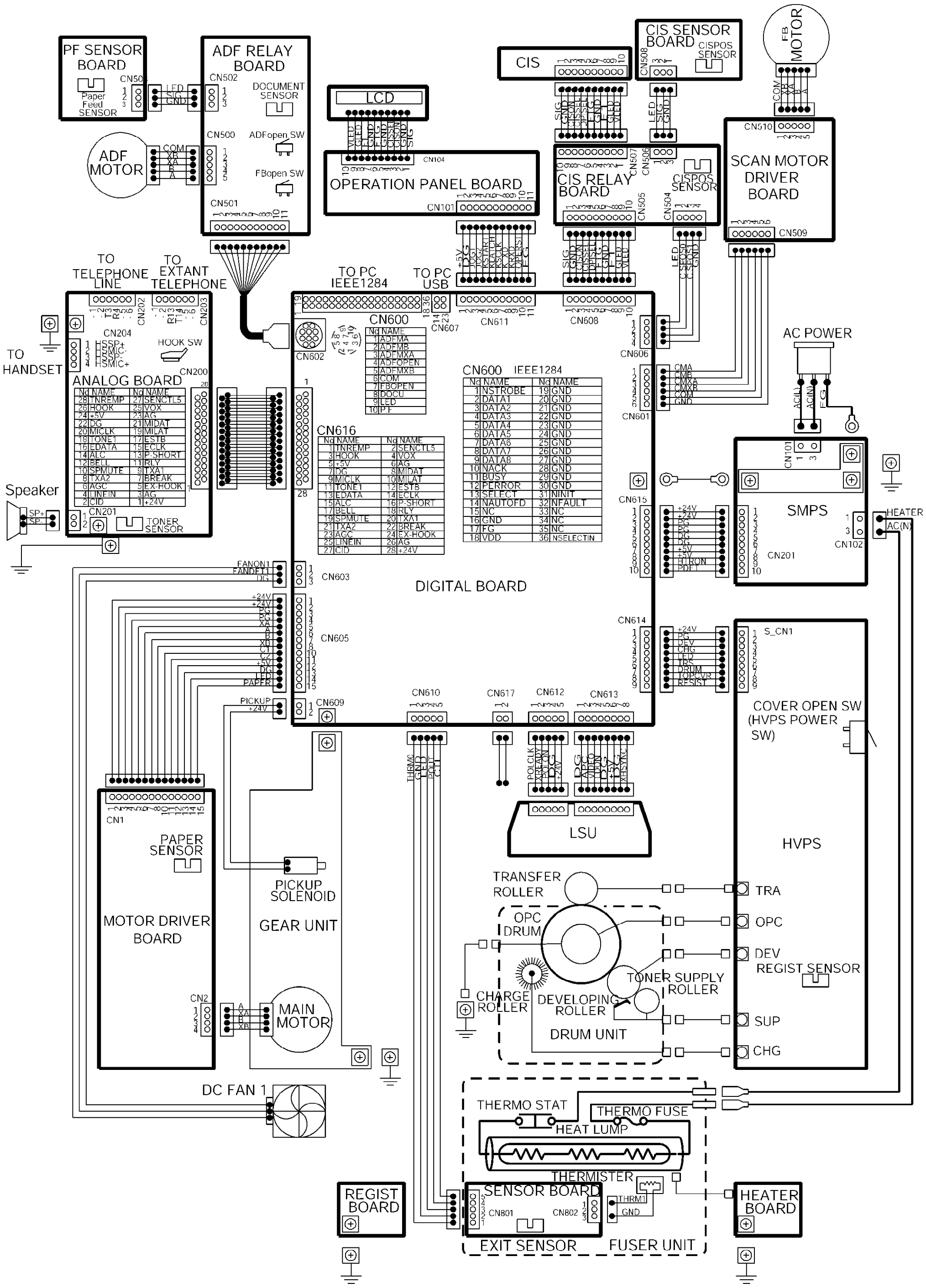
# 7. CIRCUIT OPERATIONS

# 7.1. CONNECTION DIAGRAM

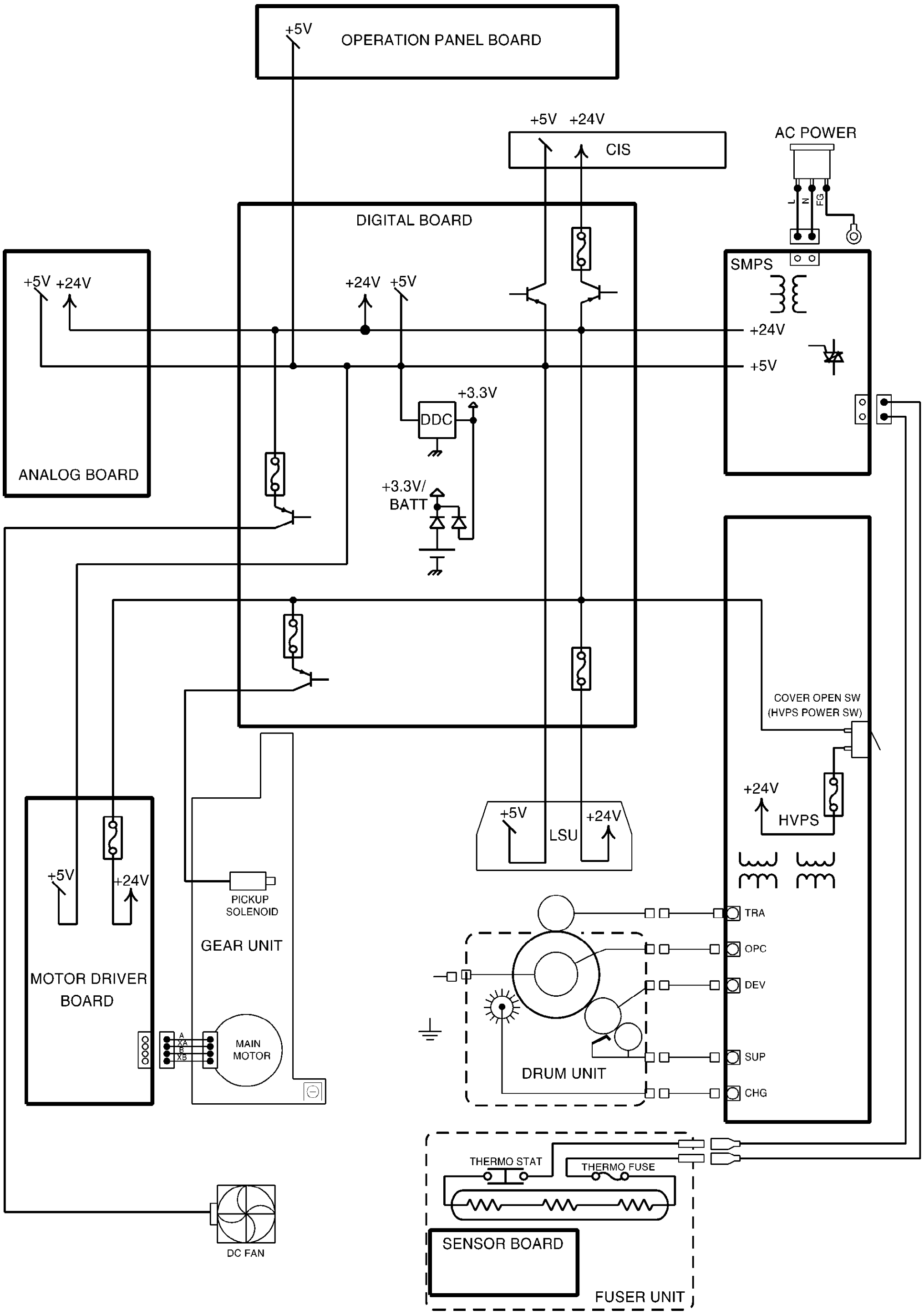
## 7.1.1. CONNECTION DIAGRAM (1)


TO PC(PARALLEL)
1
19
18
36
DIGITAL BOARD
LSU(Laser Scanning Unit)
CN612
POLCLK
XREADY
POLON
DG
+24V
CN613
DG
APC
VIDEO
LDON
DG
+5V
DG
XHSYNC
TERMISTER
(TO HEATER)
THRM1
GND
SENSOR BOARD
CN802
CN
PAPER OUT SENSOR
CN610
THRM1
GND
LED
POUT
CTL
MOTOR
DRIVER BOARD
CN
S_CN1
PAPER SENSOR
CN605
+24V
+24V
PG
PG
XA
A
B
XB
C1
C2
+5V
DG
LED
PAPER
PICK-UP SOLENOID
+24V
PICKUP
CN609
LCD
GND
+5V
VO
RS
R/W
E
D0
D1
D2
D3
D4
D5
D6
D7
OPERATION BOARD
CN104
CN101
CN611
+5V
DG
JOG1
JOG2
KSTART
KLATCH
KSCLK
KTXD
KRXD
OPERST
FG
CIS BOARD
SIG
GND
CISON
CISSEL
GND
FTG
GND
F1
GLED
VLED
CIS RELAY BOARD
CN507
CN505
CN608
CN506
CN504
CN606
LED
CISPOS0
CISPOS1
GND
CN503
FB HOME SENSOR
ADF HOME SENSOR
CN607
TO PC(USB)
CN616
TNREMP
SENCTL5
HOOK
VOX
+5VD
AG
DG
MIDATA
MICLK
MILAT
TONE1
ESTB
EDATA
ECLK
ALC
P-SHORT
BELL
RLY
SPMUTE
TXA1
TXA2
BREAK
AGC
EX-HOOK
LINEIN
AG
CID
+24V
CN202
ANALOG BOARD
TONER SENSOR
CN201
TO SPEAKER
CN204
TO HAND SET
CN205
TO TEL LINE
CN203
TO EXT TEL
CN615
+24V
+24V
PG
PG
DG
DG
+5V
+5V
HTRON
PDET
CN201
POWER SUPPLY BOARD
CN102
L
N
THERMO FUSE
HEAT LAMP
THERMO STAT
CN614
+24V
PG
DEV
CHG
LED
TRS
DRUM
TOPCVR
RESIST
S_CN1
HIGH VOLTAGE BOARD
TRA
OPC
DEV
SUP
CHG
CN603
+5V
FANDET1
FANON1
FAN1
REGIST SENSOR
PRINTER OPEN SW
(HVPS POWER SW)
CN602
ADFMA
ADFMB
ADFMXA
ADFOPEN
ADFMXB
COM
FBOPEN
DOCU
LED
P.F
FG
CN501
CN502
LED
P.F
DG
CN503
P.F SENSOR
CN500
MOTOR
DOC SENSOR
ADF OPEN SW
FB OPEN SW
ADF RELAY BOARD
CN601
CMA
CMB
CMXA
CMXB
COM
GND
CN509
SCAN MOTOR DRIVER BOARD
MOTOR

## 7.1.2. CONNECTION DIAGRAM (2)


PF SENSOR BOARD
ADF RELAY BOARD
CIS
CIS SENSOR BOARD
FB MOTOR
LCD
OPERATION PANEL BOARD
CIS RELAY BOARD
SCAN MOTOR DRIVER BOARD
ADF MOTOR
DOCUMENT SENSOR
ADFopen SW
FBopen SW
CISPOS SENSOR
TO TELEPHONE LINE
TO EXTANT TELEPHONE
TO PC IEEE1284
TO PC USB
TO HANDSET
HOOK SW
ANALOG BOARD
Speaker
TONER SENSOR
CN600
CN616
CN600 IEEE1284
AC POWER
SMPS
HEATER
DIGITAL BOARD
COVER OPEN SW (HVPS POWER SW)
HVPS
PAPER SENSOR
MOTOR DRIVER BOARD
PICKUP SOLENOID
GEAR UNIT
MAIN MOTOR
LSU
TRANSFER ROLLER
OPC DRUM
CHARGE ROLLER
DEVELOPING ROLLER
TONER SUPPLY ROLLER
DRUM UNIT
TRA
OPC
DEV
REGIST SENSOR
SUP
CHG
DC FAN 1
THERMO STAT
THERMO FUSE
HEAT LUMP
THERMISTER
SENSOR BOARD
REGIST BOARD
HEATER BOARD
EXIT SENSOR
FUSER UNIT

## 7.1.3. POWER SUPPLY FLOW


OPERATION PANEL BOARD
+5V
CIS
+5V
+24V
AC POWER
L
N
FG
DIGITAL BOARD
+24V
+5V
SMPS
+24V
+5V
ANALOG BOARD
+5V
+24V
DDC
+3.3V
+3.3V/
BATT
COVER OPEN SW
(HVPS POWER SW)
+24V
HVPS
MOTOR DRIVER
BOARD
+5V
+24V
PICKUP
SOLENOID
GEAR UNIT
MAIN
MOTOR
A
XA
B
XB
LSU
+5V
+24V
TRA
OPC
DEV
SUP
CHG
DRUM UNIT
THERMO STAT
THERMO FUSE
SENSOR BOARD
FUSER UNIT
DC FAN

## 7.2. GENERAL BLOCK DIAGRAM

**The following is an outline of each device IC on the digital board.**

## 1. ASIC (IC604)

**Composed mainly of an address decoder and a modem control.**

Controls the general FAX operations.
Performs the image processing.
CPU and Real time clock
Provides the reset pulse for each of the major ICs.

**2. G/A (IC610)**

Controls the operation panel I/F.
Controls the LSU I/F.
Latches lower address.
Controls FANs, LEDs and analog I/F.

**3. Flash ROM (IC606)**

Contains all of the program instructions on the unit operations.

**4. Synchronous Dynamic RAM**

4-1. (IC608) This memory is used for the parameter working in the storage area and for the page memory.
4-2. (IC603) This memory is used for image processing.

**5. CODEC (IC609)**

Performs the modulation and the demodulation for FAX communication.

**6. Read Section**

CIS image sensor to read transmitted documents.

**7. Motor Driver Board**

Drives the motor.

**8. LSU (Laser Scanning Unit)**

Forms the images on the OPC drum by rotating polygon motor and reflecting the laser beam against polygon.

**9. Analog Board**

Composed of ITS circuit and NCU circuit.

**10. Sensor Section**

Composed of a cover open switch, a document sensor, a document top sensor, a paper sensor, a paper regist sensor, a paper exit sensor and a toner sensor.

**11. Power Supply Board Switching Section**

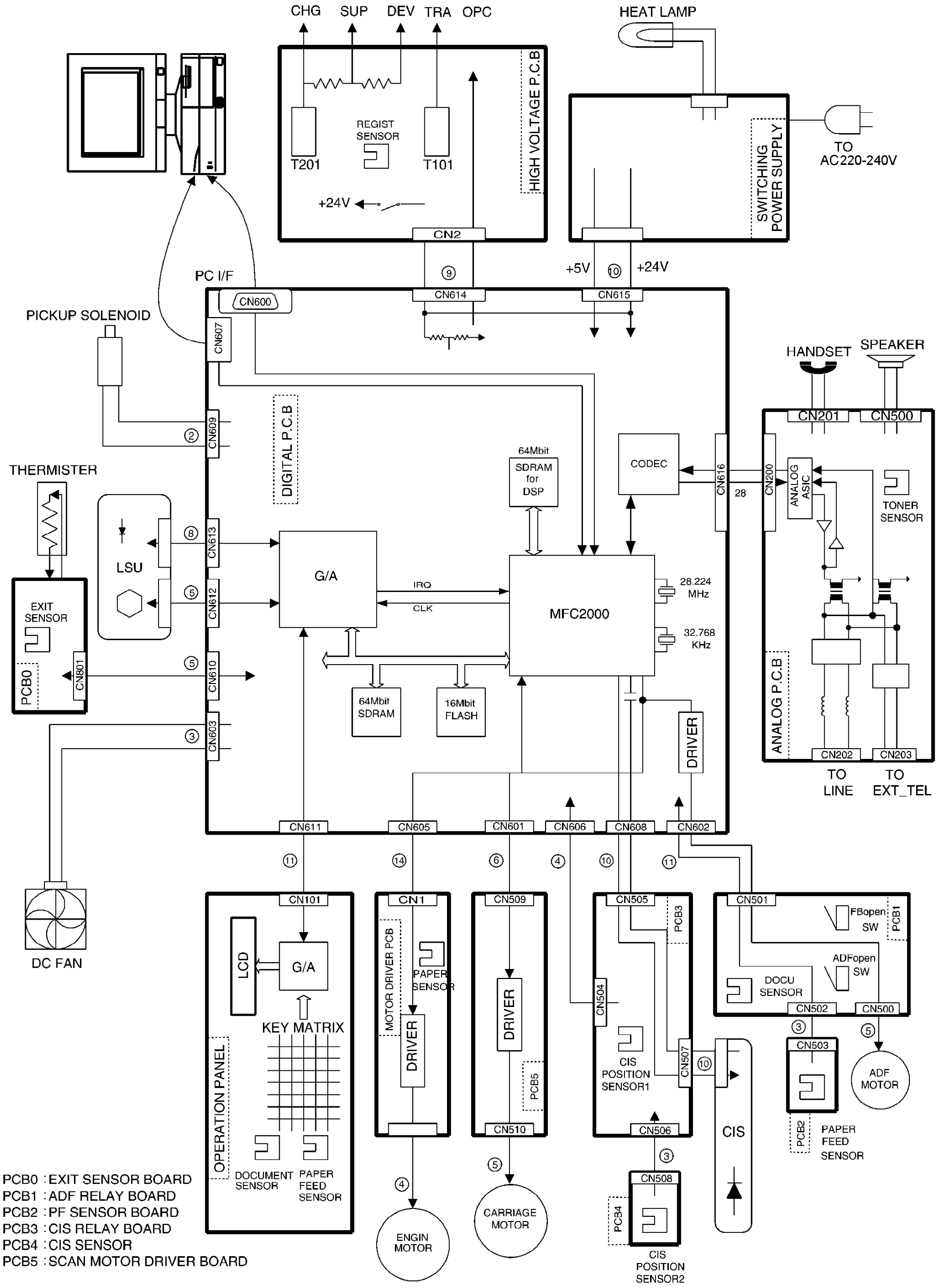
Supplies +5V and +24V to the unit.

**12. High Voltage Power Supply Board**

**Supplies bias need for the printing operation: bias of the Drum, developing and transcription.**

## 13. Fixing Unit

**Composed heat lamp, thermistor and thermal fuse.**


CHG
SUP
DEV
TRA
OPC
HEAT LAMP
REGIST SENSOR
T201
T101
HIGH VOLTAGE P.C.B
+24V
CN2
SWITCHING POWER SUPPLY
TO AC220-240V
PC I/F
9
+5V
10
+24V
CN600
CN614
CN615
PICKUP SOLENOID
CN607
HANDSET
SPEAKER
CN201
CN500
2
CN609
DIGITAL P.C.B
64Mbit SDRAM for DSP
CODEC
CN616
28
CN200
ANALOG ASIC
TONER SENSOR
THERMISTER
8
CN613
LSU
G/A
5
CN612
IRQ
CLK
MFC2000
28.224 MHz
32.768 KHz
EXIT SENSOR
PCB0
CN801
5
CN610
64Mbit SDRAM
16Mbit FLASH
ANALOG P.C.B
3
CN603
DRIVER
CN202
CN203
TO LINE
TO EXT_TEL
CN611
CN605
CN601
CN606
CN608
CN602
11
14
6
4
10
11
DC FAN
CN101
LCD
G/A
KEY MATRIX
OPERATION PANEL
DOCUMENT SENSOR
PAPER FEED SENSOR
CN1
MOTOR DRIVER PCB
PAPER SENSOR
DRIVER
4
ENGIN MOTOR
CN509
DRIVER
PCB5
CN510
5
CARRIAGE MOTOR
CN505
PCB3
CN504
CIS POSITION SENSOR1
CN507
10
CN506
3
CN508
PCB4
CIS POSITION SENSOR2
CIS
CN501
FBopen SW
PCB1
ADFopen SW
DOCU SENSOR
CN502
CN500
3
5
CN503
ADF MOTOR
PCB2
PAPER FEED SENSOR
PCB0 : EXIT SENSOR BOARD
PCB1 : ADF RELAY BOARD
PCB2 : PF SENSOR BOARD
PCB3 : CIS RELAY BOARD
PCB4 : CIS SENSOR
PCB5 : SCAN MOTOR DRIVER BOARD

# 7.3. FACSIMILE SECTION

## 7.3.1. DIGITAL SECTION

### 7.3.1.1. DIGITAL BLOCK DIAGRAM

### 7.3.1.2. ASIC (IC604)

This IC is used for general FAX operations.

| | | |
|---|---|---|
| (1) | CPU: | This model uses ARM equivalent CPU operating at 40 MHz.<br>Many of the peripheral functions are handled by custom designed LSIs.<br>As a result, the CPU only needs to process the results. |
| (2) | RTC: | Real time clock. |
| (3) | DECORDER: | Decords the address. |
| (4) | ROM/RAM I/F: | Controls the SELECT signal of ROM or RAM and bank switching. |
| (5) | ANALOG UNIT: | Sends beep tones, etc. |

### 7.3.1.3. ROM (IC606)

This 2MB FLASH ROM has 31 blocks.
The capacity of each block is 64 KB.
The addresses of the this area are from 000000H to 1FFFFFH.

### 7.3.1.4. GATE ARRAY (IC610)

This custom IC is used as following.
(1) LSU I/F Control the polygon motor and output video signal to LSU.
(2)OPERATION PANEL I/F Serial interface with operation canal.
(3) FAN MOTOR I/F Control FAN MOTOR and detect the rotation of FAM MOTOR.
(4) ANALOG I/F Serial interface for analog ASIC and electrical volume.
(5) I/O PORT I/O Port Interface.

### 7.3.1.5. SYNCHRONOUS DYNAMIC RAM (IC608)

This SDRAM is used for CPU work and receiving memory and page memory.
The address are from 200000H to 27FFFFFH.

### 7.3.1.6. SYNCHRONOUS DYNAMIC RAM (IC603)

The SDRAM is used for Image Processing work memory.
This address are from 1000000H to 11FFFFFH.

## 7.3.2. RTC BACKUP CIRCUIT

### 1. Function

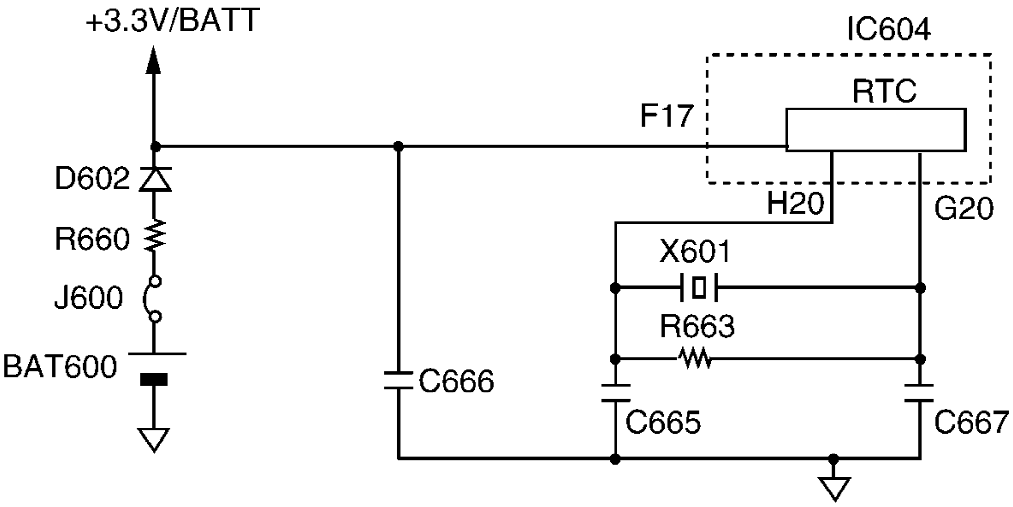
This unit has a lithium battery (BAT600) which works for the Real Time Clock IC (RTC: inside IC604).
The RTC continues to work, backed up by a lithium battery even when the power switch is OFF.

### 2. RTC Inside (IC604) Backup Circuit Operation

When the power switch is turned ON, power is supplied to the RTC (inside IC604). At this time, the voltage at pin F17 of the IC604 is +3.3V. When the power switch is turned OFF, the BAT600 supplies power to RTC through D602. The voltage at pin F17 of IC604 is about +2.5V. When the power switch is OFF and the voltage of +3.3V decreases, pin F17 of RTC (IC604) becomes roughly the same voltage as the battery voltage. RTC goes into

**the backup mode, in which the power consumption is lower.**

## Circuit Diagram


+3.3V/BATT
IC604
RTC
F17
D602
H20
G20
R660
X601
J600
R663
BAT600
C666
C665
C667

**Points to notice when replacing the battery**

**When the backup battery becomes low or the backup function is turned off for repairing, recover the backup power supply following the procedure described below.**

**(1) Replace the battery and IC. J600 should be removed beforehand.**

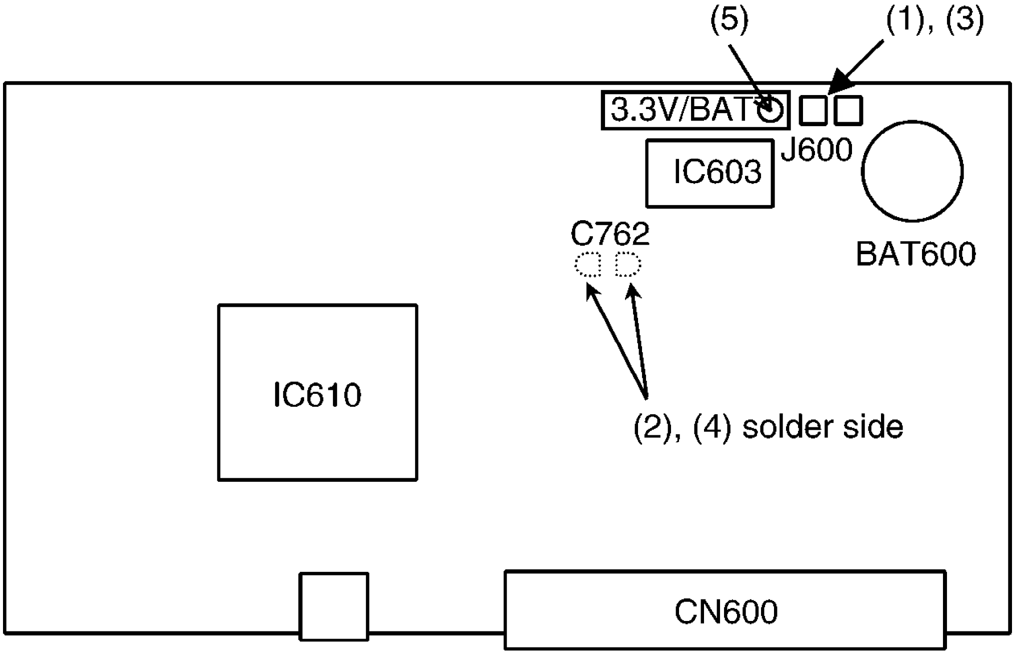
**(2) Short the both ends of C762. (Ex. Pinch them with tweezers.)**

**(3) Connect terminals of J600 with solder.**

**(4) Short the both ends of C762 again. (Ex. Pinch them with tweezers.)**

**(5) Make sure that the voltage of 3.3V/BATT test land is more than 2.7 V.**

**Digital Unit component view**


(5)
(1), (3)
3.3V/BATT
J600
IC603
BAT600
C762
IC610
(2), (4) solder side
CN600

### 7.3.3. MODEM CIRCUIT OPERATION

The CODEC (IC609) and ASIC (IC604) has all the hardware satisfying the CCITT standards mentioned previously.
ASIC (IC604) controlled codec (IC609) by senial data.
This CODEC (IC609) and ASIC (IC604) has an automatic application equalizer. With training signal 1 or 2 at the time of G3 reception, it can automatically establish the optimum equalizer.

1. Facsimile Transmission/DTMF Line Send
   The digital image data on the data bus is modulated in ASIC(IC604), and sent from pin 9 and 10 via CODEC(IC609),amplifier IC204(5/6 → 7). Analog gate array IC201(24 → 22), electric volume IC202(14 → 15),amplifier IC207(2 → 1) and the NCU section to the telephone line.
   Refer to CHECK SHEET().

2. Facsimile Reception
   The analog image data which is received from the telephone line passes through the NCU section and enters pin 14 of the CODEC (IC609). The signals that enter pin 13 of the CODEC (IC609) are demodulated in the board to digital image signals and then send pin p1 of the ASIC (IC604).
   In this case, the image signals from the telephone line are transmitted serially. In the ASIC (IC604). Here, the internal equalizer circuit reduces the image signals to a long-distance receiving level.
   This is designed to correct the characteristics of the frequency band centered around 3 kHz and maintain a constant receiving sensitivity.
   It can be set in the service mode.
   Refer to CHECK SHEET().

3. DTMF Transmission (Monitor tone)
   The DTMF signal generated in the ASIC (IC604) is output from pin P3, and the NCU section to the telephone line the same as facsimile transmission signals.
   (DTMF Monitor Tone)
   Refer to CHECK SHEET().

4. Call Tone Transmission
   This is the call signal which is generated the ASIC (IC604) and sent to the speaker.

**Refer to CHECK SHEET().**

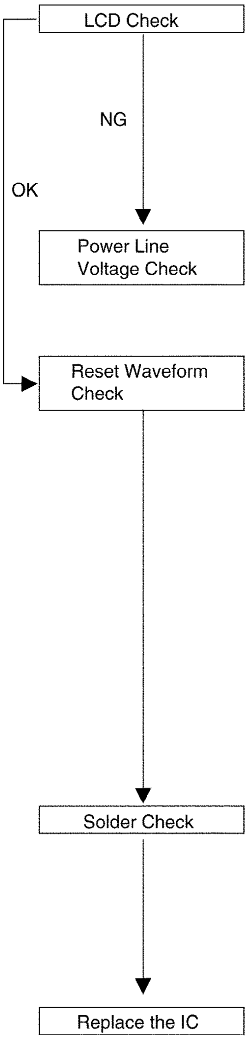
## 7.3.4. RESET

**RESET signal**

**The System Reset signal (RESETn) comes from the IC 604-K18pin, 'H' level (3.3V) in normal times, while 'L' (0V) at reset.**

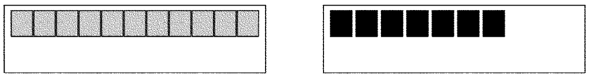
**A built-in reset circuit inside IC 604 triggers a reset when the +5V power line voltage drop below 4.3V,or the 3.3V power line voltage drop below 2.9V.**

**What to do when the system does not start up after the power is turned ON.**


LCD Check
NG
OK
Power Line Voltage Check
Reset Waveform Check
Solder Check
Replace the IC

First, carefully observe the LCD.

Confirm that the displays turn slightly dark or black squares appear after the power is turned ON.



If no change is found in the LCD, there are probably problems in the power supply system.

Measure the power line voltages (+5V, +3.3V) of the digital board.

Check CN 615 and the power board in case of NG.

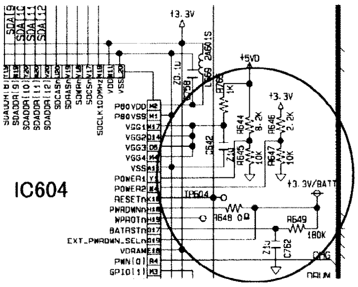
First, remove the Digital Board, and supply 5V power line voltage externally.

Check the reset signal. Check the Test Land of the "RESET" on the solder side.

Check that it is stable at 3.3 V.

If so, it is OK. If it is 0, check the items below.

1. Is the + 3.3V/BATT voltage about 2.7 to 3V when the power is OFF?
2. Are any failures of solders found on the periphery of the circuit shown on the right?


IC604
+3.3V
+5VD
+3.3V/BATT
P80VDD
P80VSS
VSS1
VSS2
VSS3
VSS4
VSS
POWER1
POWER2
RESETn
PWRDWNn
WPROTn
BATRSTn
EXT_PWRDOWN_SELn
VDRAM
PWN1O1
GPIO1I1
TP604
R648 0Ω
R649
180K
R644
R645
R646
R647
8.2K
2.2K
10K
1K
C762

When the Reset signal indicates 'H', check the items below.

1. Perform a visual check of the soldering of IC 606, IC 608, and IC 610 in order.
2. Check that no short, open, or other failures are found in the System Data Bus (D[15:0]), Address Bus (A[21:0]), XRD, ROMCS, and the others. (Check also the resistance on their ways and the resistance array condenser.) It is recommended to monitor the waveform to see that it does not show intermediate electric potential (1.5 to 2V).

When no failures are found in the soldering, replace the ICs in order below.

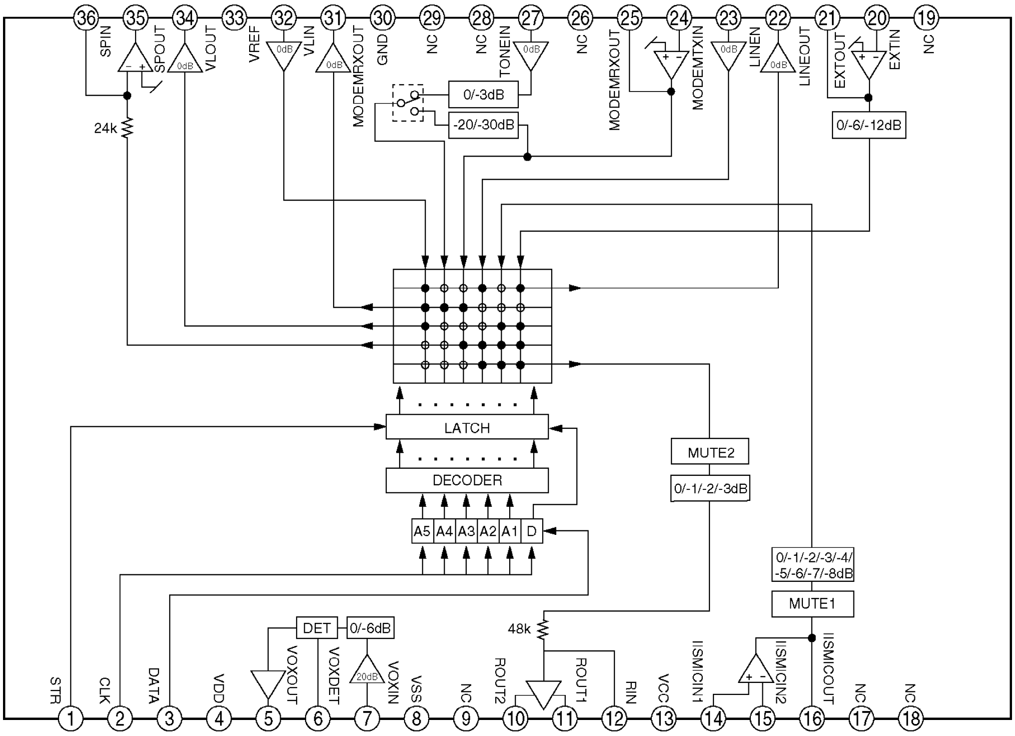
1. IC606 (FLASH memory)
2. IC608 (SDRAM)
3. IC610 (G./A)
4. IC604 (ASIC)

## 7.3.5. ANALOG SECTION

### 7.3.5.1. ANALOG GATE ARRAY (IC201 on the Digital Board))

**This IC can perform signal route switching and level adjustments for various types of analog signals.**

**This IC incorporates a cross-point switch (CPS), an electronic volume.**
**The CPS of this IC is controlled by sending data from digital ASIC.**


36
35
34
33
32
31
30
29
28
27
26
25
24
23
22
21
20
19
SPIN
SPOUT
VLOUT
VREF
VLIN
MODEMRXOUT
GND
NC
NC
TONEIN
NC
MODEMRXOUT
MODEMTXIN
LINEN
LINEOUT
EXTOUT
EXTIN
NC
0dB
0/-3dB
-20/-30dB
0/-6/-12dB
24k
LATCH
DECODER
A5
A4
A3
A2
A1
D
MUTE2
0/-1/-2/-3dB
0/-1/-2/-3/-4/
-5/-6/-7/-8dB
MUTE1
48k
DET
0/-6dB
20dB
STR
CLK
DATA
VDD
VOXOUT
VOXDET
VOXIN
VSS
NC
ROUT2
ROUT1
RIN
VCC
IISMICIN1
IISMICIN2
IISMICOUT
NC
NC
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18

**Explanation of ANALOG GATE ARRAY (IC201 on the DIGITAL Board)**

| No. | Name | Function | No. | Name | Function |
|---|---|---|---|---|---|
| 1 | STR | Strobe input | 19 | NC | Not used |
| 2 | CLOCK | Clock input | 20 | EXTIN | Ext amp output |
| 3 | DATA | Data input | 21 | EXTOUT | Ext amp input |
| 4 | VDD | Logic power supply | 22 | LINEOUT | Line amp output |
| 5 | VOXOUT | VOX output | 23 | LINEIN | Line amp input |
| 6 | VOXDET | VOX detection adjustment | 24 | MODEMTXIN | MODEM TX amp input |
| 7 | VOXIN | VOX input | 25 | MODEMTXOUT | MODEM TX amp output |
| 8 | VSS | Logic ground | 26 | NC | Not used |
| 9 | NC | Not used | 27 | TONEIN | Tone amp input |
| 10 | ROUT2 | HS receiver amp output 2 | 28 | NC | Not used |
| 11 | ROUT1 | HS receiver amp output 1 | 29 | NC | Not used |
| 12 | RIN | HS receiver amp input | 30 | GND | Analog ground |
| 13 | VCC | Analog ground | 31 | MODEMRXOUT | MODEM RX amp output |
| 14 | HSMICIN1 | HS mic amp input 1 | 32 | VLIN | Volume amp input |
| 15 | HSMICIN2 | HS mic amp input 2 | 33 | VREF | Reference voltage output |
| 16 | HSMICOUT | HS mic amp output | 34 | VLOUT | Volume amp output |
| 17 | NC | Not used | 35 | SPOUT | Speaker amp output |
| 18 | NC | Not used | 36 | SPIN | Speaker amp input |

### 7.3.5.2. DESCRIPTION OF BLOCK DIAGRAM IN ANALOG SECTION

**1. Function**

**The analog section works as an interface between the telephone line.**

**The analog ASIC (IC201) on the digital board exchanges FAX TX and RX signals between the CODEC (IC609) and the analog section.**

**The control signals transmitted to the analog section are output mainly from G/A IC610, and the analog status is stored as data in G/A IC610.**

**2. Circuit Operation**

**[NCU]: Network Control Unit the NCU comprises of the following; DC loop forming circuit to connect with the telephone line; Switching circuit for other interconnected telephones; Bell detection circuit; Side tone circuit; Remote fax activation circuit.**

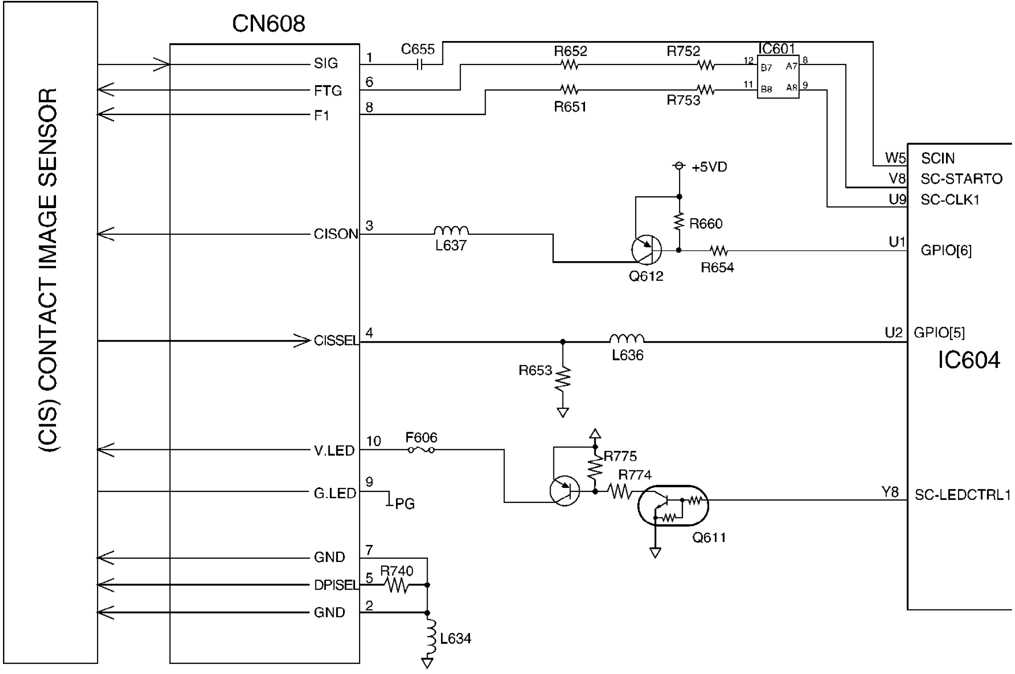
**Refer to NCU SECTION () for the details.**

### 7.3.5.3. BLOCK DIAGRAM

## 7.4. CIS CONTROL SECTION

**The scanning block of this device consists of a control circuit and a contact image sensor made up of a celfoc lens array, an LED array, and photoelectric conversion elements.**

**Circuit Diagram**


(CIS) CONTACT IMAGE SENSOR
CN608
SIG
FTG
F1
CISON
CISSEL
V.LED
G.LED
GND
DPISEL
GND
1
6
8
3
4
10
9
7
5
2
C655
R652
R752
R651
R753
IC601
12
11
B7
B8
A7
A8
8
9
+5VD
R660
Q612
R654
L637
R653
L636
F606
PG
R775
R774
Q611
R740
L634
W5
V8
U9
U1
U2
Y8
SCIN
SC-STARTO
SC-CLK1
GPIO[6]
GPIO[5]
IC604
SC-LEDCTRL1

**When an original document is inserted and the start button pressed, pin Y8 of IC604 goes to a**

**high level and the transistor Q611 turns on.This applies voltage to the LED array to light it. The contact image sensor is driven by each of the FTG-F1 signals output from IC604, and the original image illuminated by the LED array undergoes photoelectric conversion to output an analog image signal (SIG). The analog image signal is input to the system ASIC on SCIN (pin w5 of IC604) and converted into 8-bit data by the A/D converter inside IC604. Then this signal undergoes digital processing in order to obtain a high-quality image.**

## 7.5. STEPPING MOTOR DRIVE SECTION

### 7.5.1. ENGINE MOTOR DRIVE CIRCUIT

**1. Functions**

**This motor functions for main operations FAX reception and copy printing.**

**This feed recording paper synchronized for printing.**

**2. Motor operation**

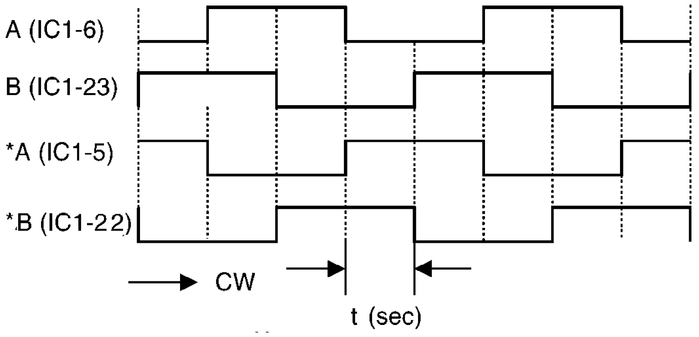
**Excitation pulses is output from ASIC (IC604) pins U8, W9 Y9 and Y12. Then stepping pulses are output from driver IC (IC1) pin No 9, 11, 15 and 19, and drives the motor coil.**

**During motor driving, pin N1 and pin R2 of ASIC IC604 becomes a low level.**

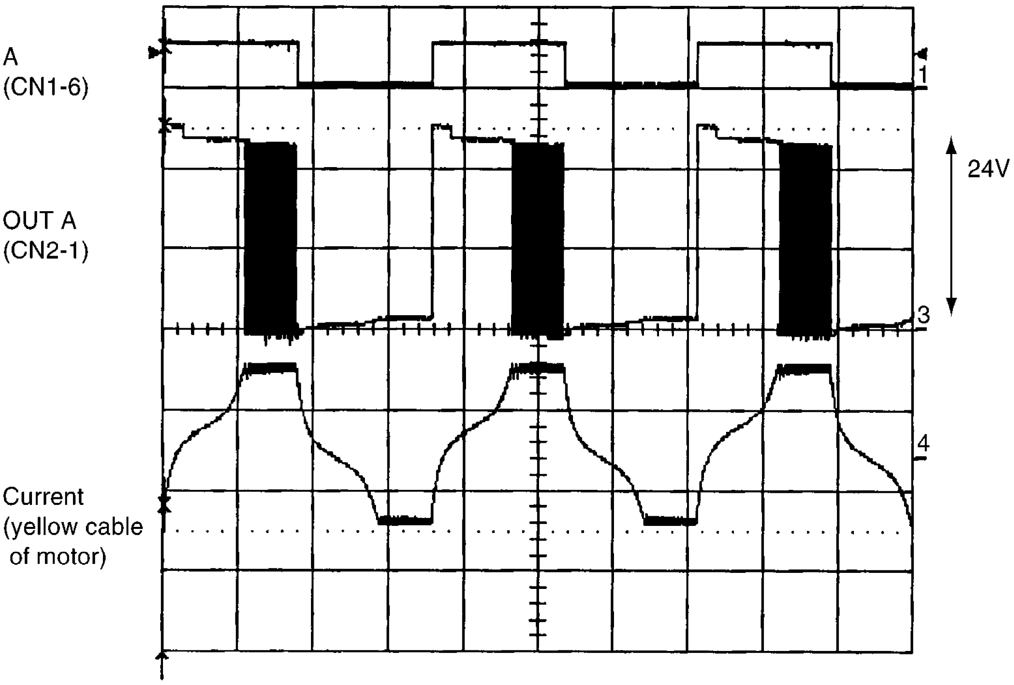
**As a result, a current of about 1A are supplied to the motor coil.**

#### 7.5.1.1. TIMING CHART

① 2 phase excitation



② 2 phase excitation output waveform (example "A Phase")



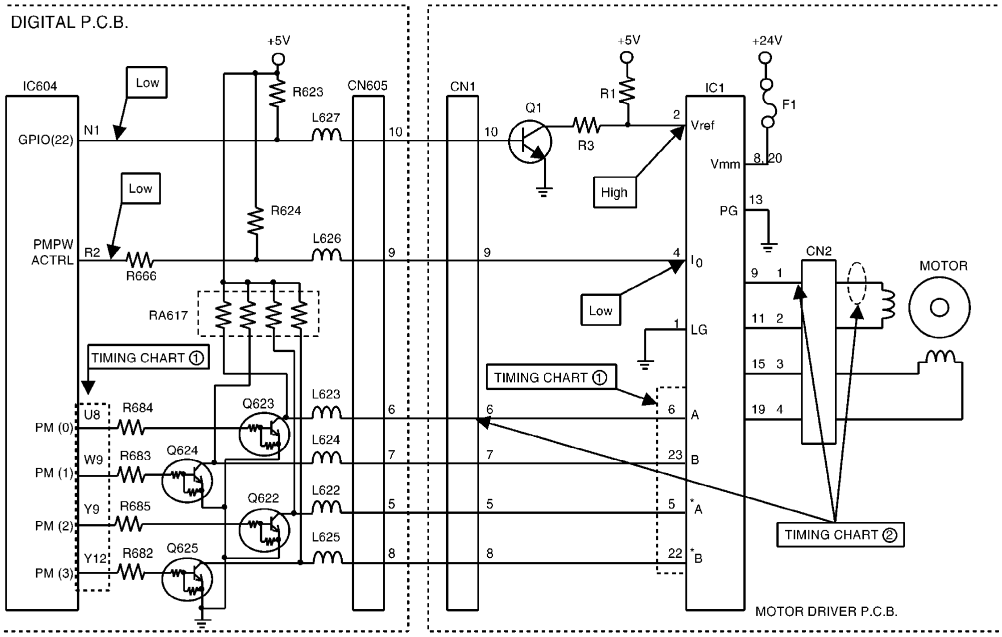
Other phase (B, *A, *B) operates as A phase does.

## DRIVE MODE

| FUNCTION | MODE | PHASE PATTERN | SPEED | CUREREN |
|---|---|---|---|---|
| PRINT | - | 2 phase | 743pps (t=1/743) | 1A |

### 7.5.1.2. ENGINE MOTOR DRIVE CIRCUIT

(1) Circuit Diagram


DIGITAL P.C.B.
IC604
GPIO(22)
N1
Low
+5V
R623
L627
CN605
10
Low
R624
PMPW
ACTRL
R2
R666
L626
9
RA617
TIMING CHART ①
PM (0)
U8
R684
Q623
L623
6
PM (1)
W9
R683
Q624
L624
7
PM (2)
Y9
R685
Q622
L622
5
PM (3)
Y12
R682
Q625
L625
8
CN1
10
9
6
7
5
8
Q1
+5V
R1
R3
High
2
IC1
Vref
Vmm
PG
4
Io
Low
1
LG
TIMING CHART ①
6
A
23
B
5
*A
22
*B
+24V
F1
8, 20
13
CN2
9 1
11 2
15 3
19 4
MOTOR
TIMING CHART ②
MOTOR DRIVER P.C.B.

## 7.5.2. ADF (Auto Document Feed) MOTOR DRIVE CIRCUIT

### 1. Functions

**This motor functions for main operations including FAX transmission, ADF copy and PC scan.**

**This feed document paper synchronized for reading.**

### 2. Motor operation

**During motor driving, pin R3 of ASIC IC604 becomes a high level, and Q606, Q602 turns ON.**

**As a result, +24V is supplied to the motor coil.**

**Stepping pulses are output from ASIC IC604 pins, U6, Y7, W7, V7, causing driver IC600 pins,**

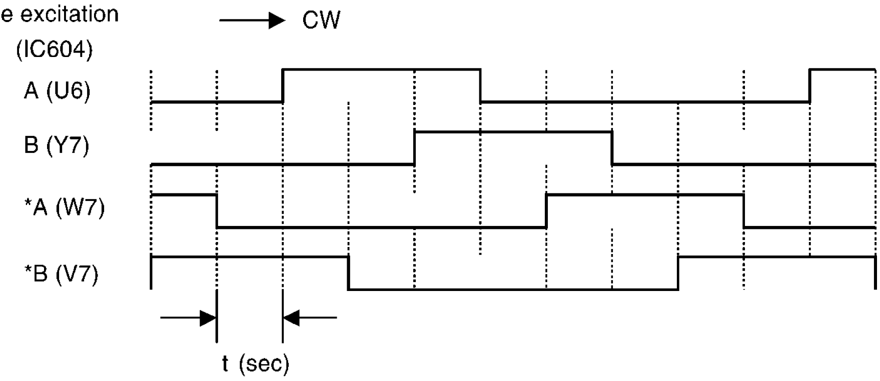
**16 ~ 13 to drive the motor coil.**

**The motor coil is energized sequentially in 2 phase increments, which causes a 1-step rotation.**

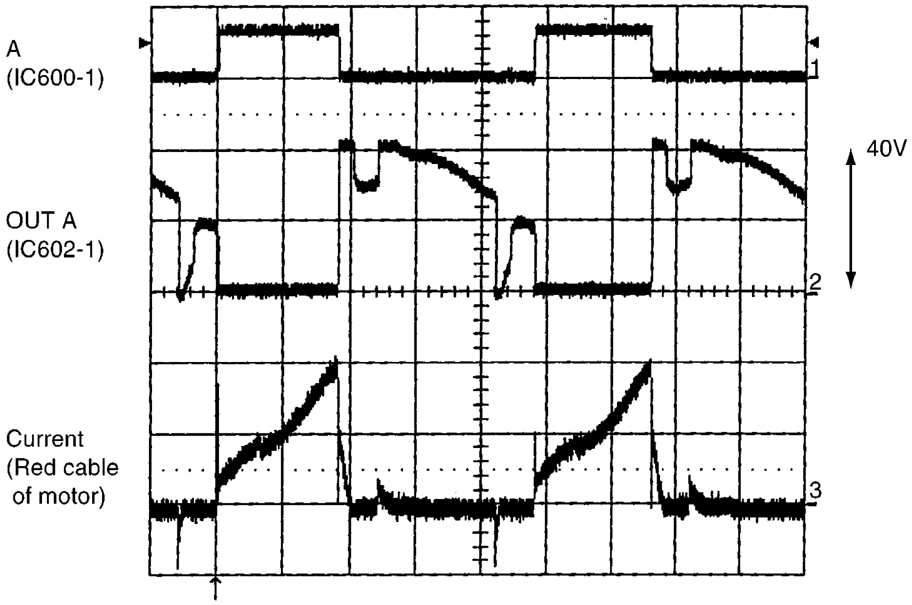
**A 1-step rotation feeds 0.042mm of document paper.**

#### 7.5.2.1. TIMING CHART

① 1-2 phase excitation


CW
(IC604)
A (U6)
B (Y7)
*A (W7)
*B (V7)
t (sec)

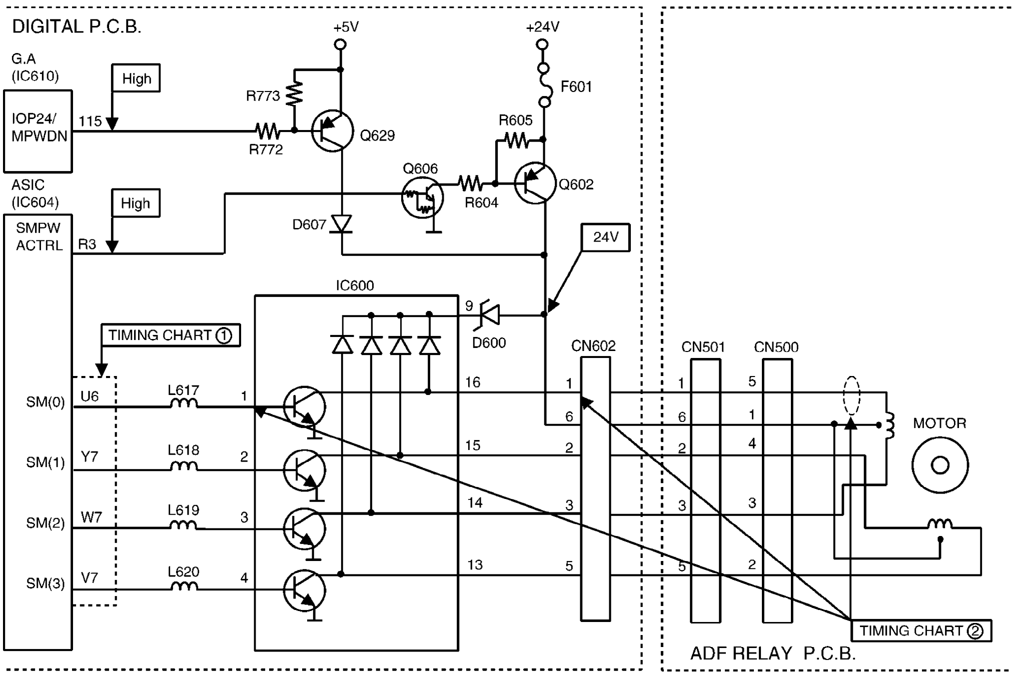
② 1-2 phase excitation output wave form (example "A Phase")



Other phase (B, *A, *B) operates as A phase does.

### 7.5.2.2. ADF (Auto Document Feed) MOTOR DRIVE CIRCUIT

(1) Circuit Diagram


DIGITAL P.C.B.
G.A
(IC610)
IOP24/
MPWDN
115
High
ASIC
(IC604)
SMPW
ACTRL
R3
High
+5V
R773
R772
Q629
+24V
F601
R605
Q606
R604
Q602
D607
24V
IC600
9
D600
TIMING CHART ①
SM(0)
SM(1)
SM(2)
SM(3)
U6
Y7
W7
V7
L617
L618
L619
L620
1
2
3
4
16
15
14
13
CN602
1
6
2
3
5
CN501
1
6
2
3
5
CN500
5
1
4
3
2
MOTOR
TIMING CHART ②
ADF RELAY P.C.B.

**DRIVE MODE**

| FUNCTION | | MODE | PHASE PATTERN | SPEED |
|---|---|---|---|---|
| SCAN | FAX | STANDARD | 1 - 2 phase | 833pps (t= 1/ |
| SCAN | FAX/COPY | FINE/HALF TONE | 1 - 2 phase | 833pps (t= 1/ |
| SCAN | FAX/COPY | SUPER FINE | 1 - 2 phase | 833pps (t= 1/ |
| SCAN | PAPER FEED | - | 1 - 2 phase | 833pps (t= 1/ |
| STAND-BY | | - | ALL PHASE OFF | - |

## 7.5.3. CR (Carriage) MOTOR DRIVE CIRCUIT

### 1. Functions

**This motor functions for main operations including FAX transmission, FB copy and PC scan.**

**This feed document paper synchronized for reading.**

### 2. Motor operation

**During motor driving, pin P4 of ASIC IC604 becomes a high level, and Q605, Q600 turns ON.**

**As a result, +24V is supplied to the motor coil.**

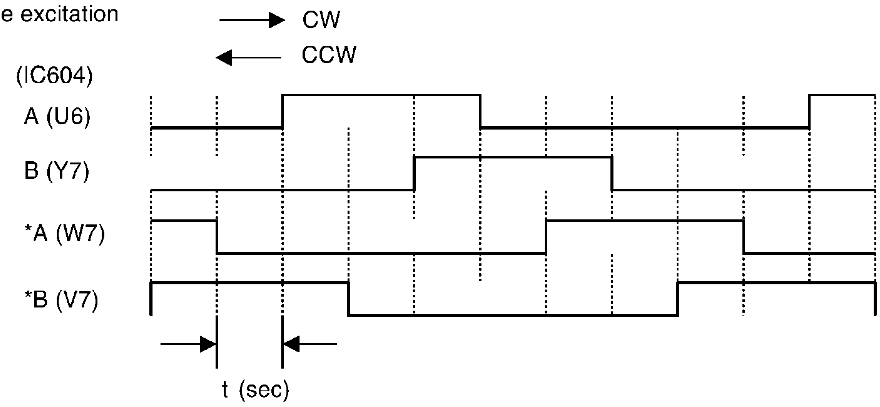
**Stepping pulses are output from ASIC IC604 pins, U6, Y7, W7, V7, causing driver IC500 pins,**

**16 ~ 13 to drive the motor coil.**

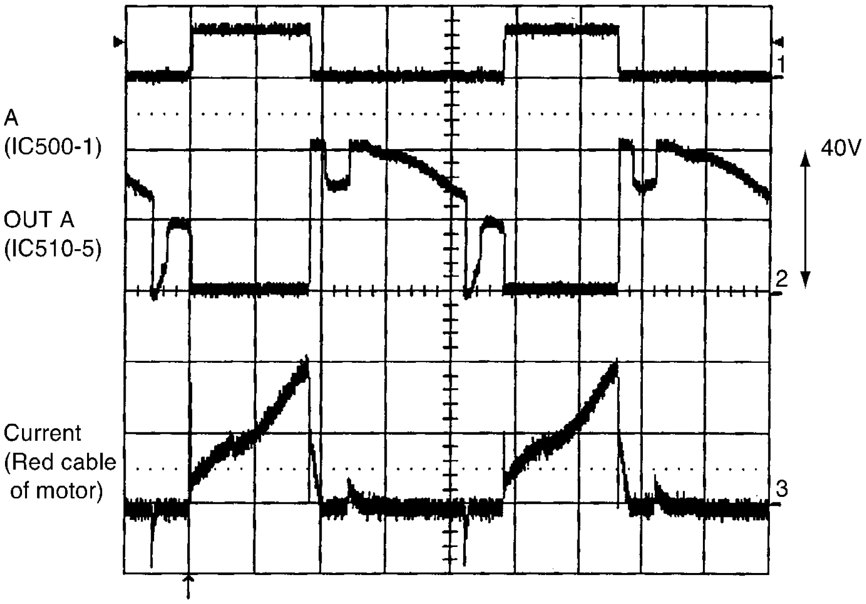
**The motor coil is energized sequentially in 2 phase increments, which causes a 1-step rotation.**
**A 1-step rotation feeds 0.042mm of document paper.**

### 7.5.3.1. TIMING CHART

① 1-2 phase excitation



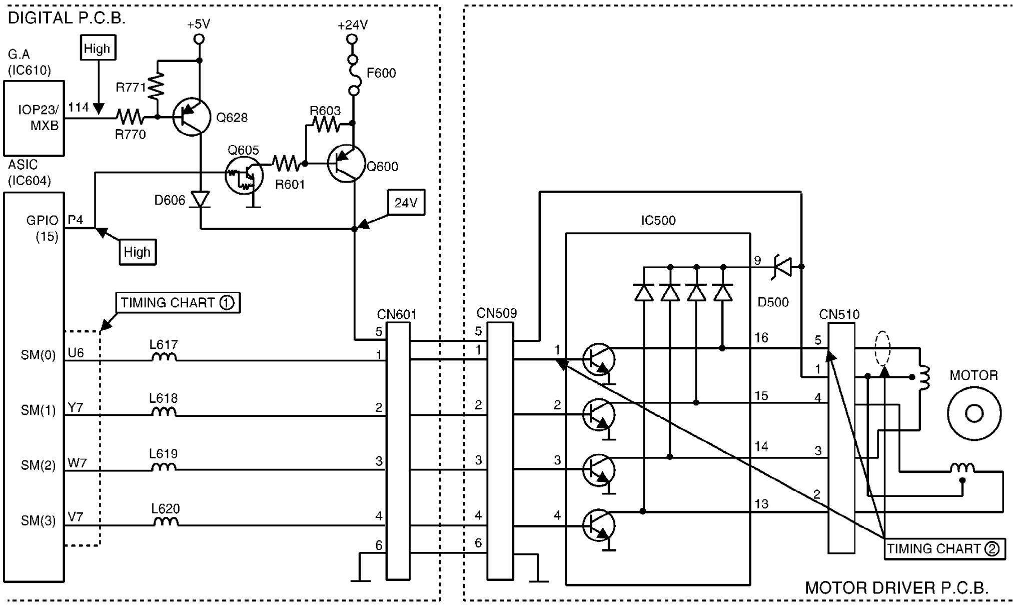
② 1-2 phase excitation output wave form (example "A Phase")



Other phase (B, *A, *B) operates as A phase does.

### 7.5.3.2. CR (Carriage) MOTOR DRIVE CIRCUIT

(1) Circuit Diagram

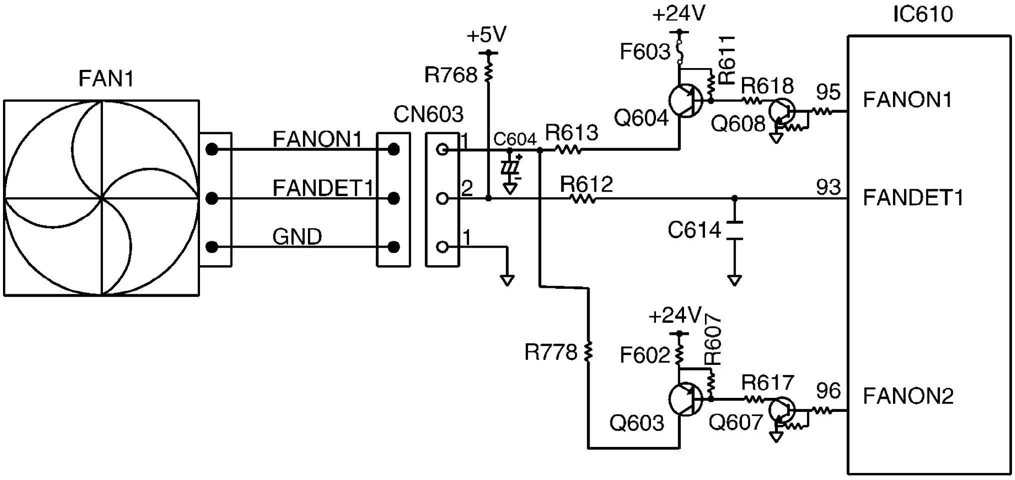

DIGITAL P.C.B.
G.A
(IC610)
IOP23/
MXB
114
High
R771
R770
+5V
Q628
+24V
F600
R603
Q605
R601
Q600
D606
24V
ASIC
(IC604)
GPIO
(15)
P4
High
TIMING CHART ①
SM(0)
SM(1)
SM(2)
SM(3)
U6
Y7
W7
V7
L617
L618
L619
L620
CN601
CN509
IC500
D500
CN510
MOTOR
TIMING CHART ②
MOTOR DRIVER P.C.B.

**DRIVE MODE**

| FUNCTION | | MODE | PHASE PATTERN | SPEED |
|---|---|---|---|---|
| SCAN | FAX | STANDARD | 1 - 2 phase | 833pps (t= 1/ |
| SCAN | FAX/COPY | FINE/HALF TONE | 1 - 2 phase | 833pps (t= 1/ |
| SCAN | FAX/COPY | SUPER FINE | 1 - 2 phase | 833pps (t= 1/ |
| SCAN | NO SCANNING | - | 1 - 2 phase | 1250pps (t= 1/ |
| STAND-BY | | - | ALL PHASE OFF | - |

## 7.6. FAN MOTOR SECTION

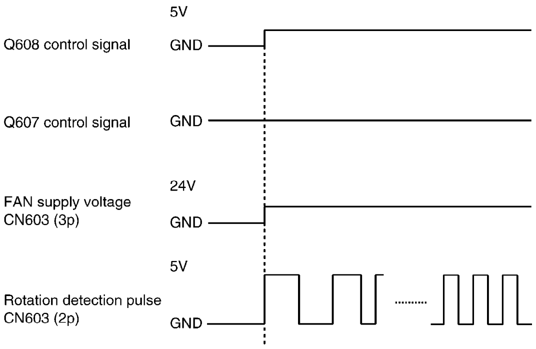
**This FAN is used to radiate heat in the unit.**
**The signal level at pin 95/96 of IC610 becomes high, the FAN is activated.In this case, the pulse signal as shown below input to pin 93 of IC610 and the rotation of the FAN is detected.**


FAN1
FANON1
FANDET1
GND
CN603
1
2
1
+5V
R768
C604
R613
R612
+24V
F603
R611
R618
Q604
Q608
95
IC610
FANON1
93
FANDET1
C614
R778
+24V
F602
R607
R617
96
Q603
Q607
FANON2

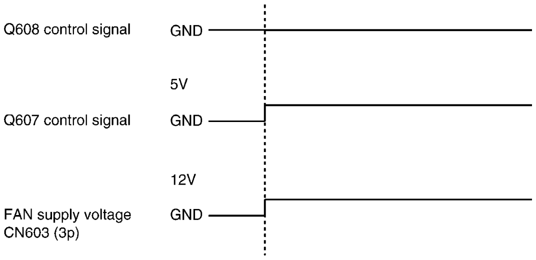
## 7.6.1. FAN CONTROL

**This unit is equipped with fan to prevent the developing device from rising in temperature while printing.**
**The air is inhaled from the left side of the unit.**
**The fan rotates at high speed (typ. 4800 rpm) while printing (controlling the developing device).**
**After printing is finished, it rotates at low speed (typ. 2400) rpm when the temperature of the unit goes up over a fixed one or depending on the number of printed papers (frequency).**
**While the fan is rotating at high speed, the voltage of 24 V is supplied to the fan, however, while rotating at low speed, the supply voltage is decreased to 12V.**
**Each signal wave is as follows:**

**1. High-speed rotation (typ. 4800 rpm)**


5V
Q608 control signal
GND
Q607 control signal
GND
24V
FAN supply voltage
CN603 (3p)
GND
5V
Rotation detection pulse
CN603 (2p)
GND

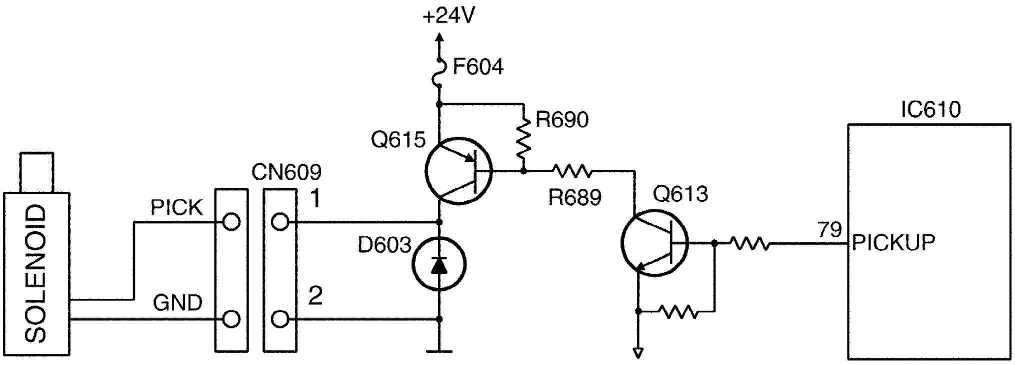
**2. Low-speed rotation (typ. 2400 rpm)**


Q608 control signal
GND
5V
Q607 control signal
GND
12V
FAN supply voltage
CN603 (3p)
GND

**During low-speed rotation, the rotation detection does not function.**

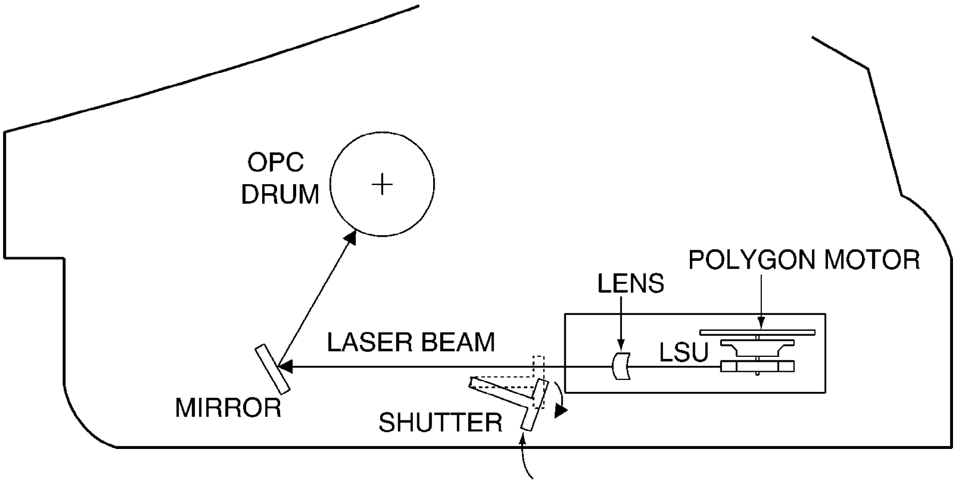
## 7.7. SOLENOID DRIVE SECTION

**The solenoid drive circuit controls the pick-up clutch.**
**The solenoid is designed to be driven by +24V, driven by IC610-79 pin.**
**Diode D603 protects Q615 from backward voltage when the solenoid is driven.**

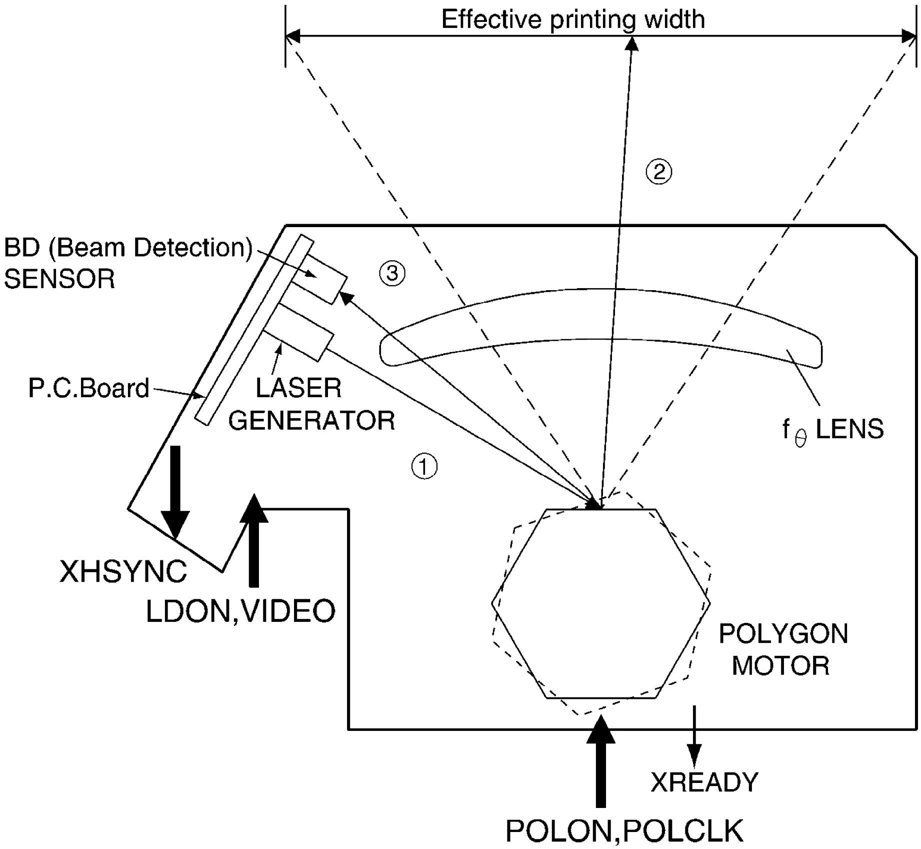

+24V
F604
R690
IC610
Q615
CN609
R689
Q613
PICK
1
D603
79
PICKUP
SOLENOID
GND
2

| Mode | IC606-149 pin |
|---|---|
| SOLENOID ON | high level |
| SOLENOID OFF | low level |

## 7.8. LSU (Laser Scanning Unit) SECTION

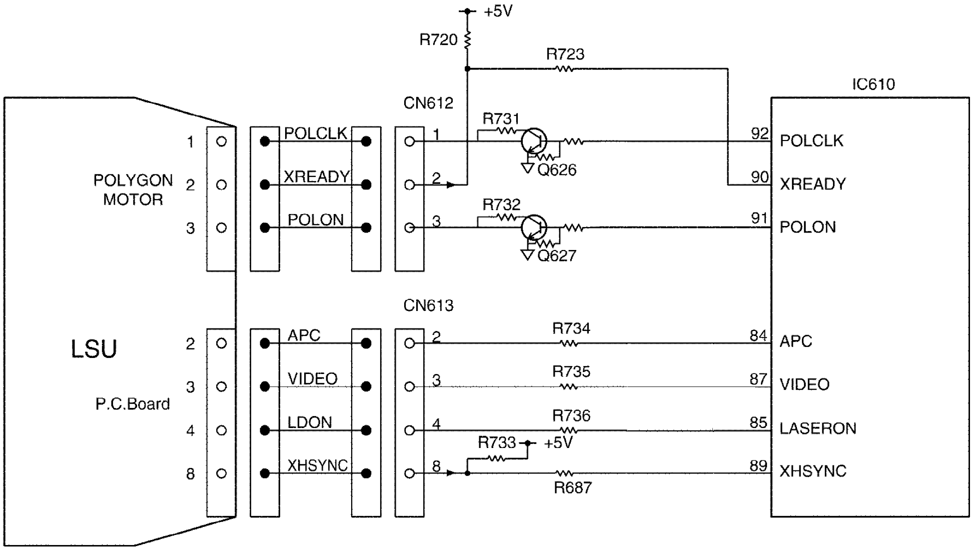

OPC
DRUM
POLYGON MOTOR
LENS
LASER BEAM
LSU
MIRROR
SHUTTER

The mechanical shutter will be opened by setting DRUM UNIT properly.

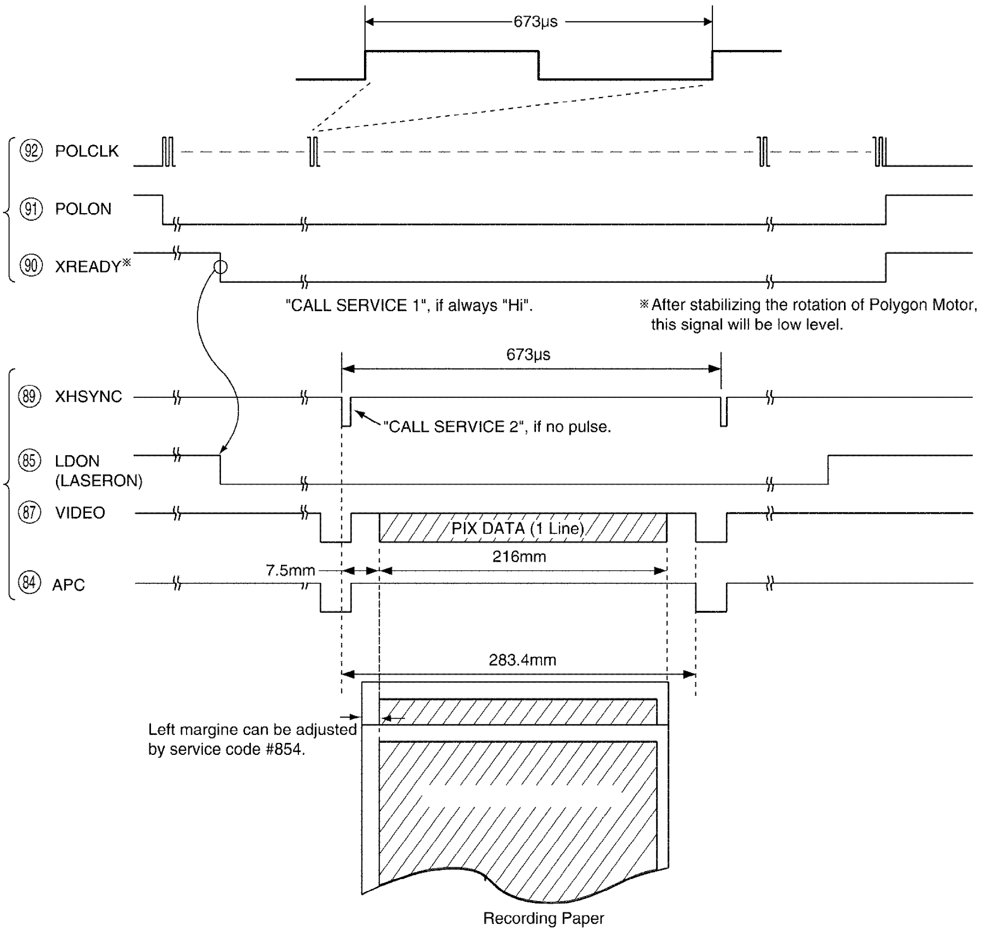

Effective printing width
②
BD (Beam Detection)
SENSOR
③
P.C.Board
LASER
GENERATOR
f θ LENS
①
XHSYNC
LDON,VIDEO
POLYGON
MOTOR
XREADY
POLON,POLCLK

① Laser output
② Laser reflecting on the drum
③ Laser towards the effective printing outside range onto the sensor

**Circuit Diagram**


+5V
R720
R723
IC610
CN612
R731
1
2
3
POLYGON
MOTOR
POLCLK
XREADY
POLON
Q626
R732
Q627
92
90
91
POLCLK
XREADY
POLON
CN613
LSU
P.C.Board
2
3
4
8
APC
VIDEO
LDON
XHSYNC
R734
R735
R736
R733
+5V
R687
84
87
85
89
APC
VIDEO
LASERON
XHSYNC

**Timing Chart**


673µs
(92) POLCLK
(91) POLON
(90) XREADY※
"CALL SERVICE 1", if always "Hi".
※After stabilizing the rotation of Polygon Motor, this signal will be low level.
673µs
(89) XHSYNC
"CALL SERVICE 2", if no pulse.
(85) LDON (LASERON)
(87) VIDEO
PIX DATA (1 Line)
216mm
7.5mm
(84) APC
283.4mm
Left margine can be adjusted by service code #854.
Recording Paper

## 7.9. SENSORS AND SWITCHES SECTION

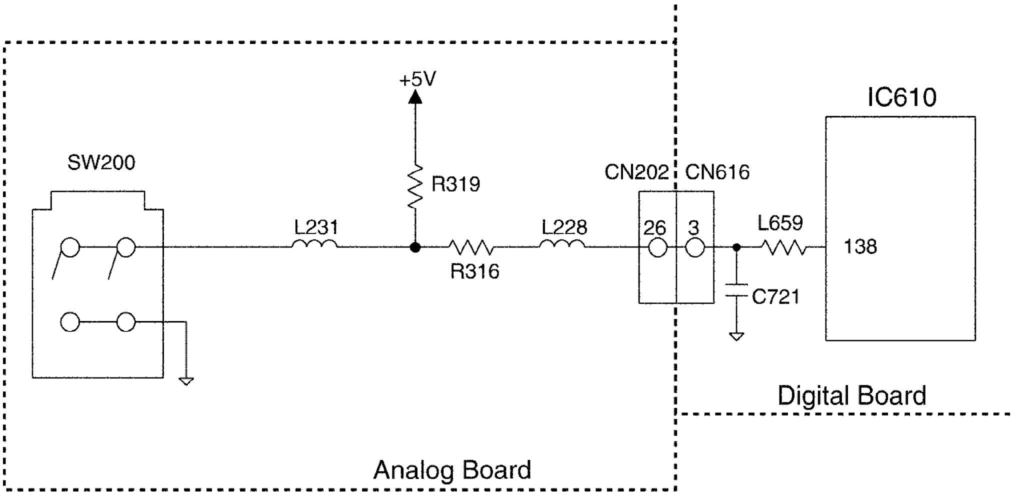
**All of the sensor and switches are shown below.**

| Sensor Circuit Location | Sensor | Sensor or Switch Name | Message Error |
|---|---|---|---|
| **ADF Relay Board** | **PS500** | **Document** | **[CHECK DOCUMENT]** |
| **RF Sensor Board** | **PS501** | **Paper Feed** | **[REMOVE DOCUMENT]** |
| **High Voltage Board** | **SW101** | **Printer Open** | **[COVER OPEN]** |
| **ADF Relay Board** | **SW501** | **ADF Cover Open** | ——— |
| **ADF Relay Board** | **SW500** | **FB Cover Open** | ——— |
| **ADF Relay Board** | **PS502** | **CIS Position (ADF Home)** | ——— |
| **CIS Sensor Board** | **PS503** | **CIS Position (FB Home)** | ——— |
| **High Voltage Board** | —— | **OPC Set** | **[CHECK DRUM]** |
| **High Voltage Board** | **PC201** | **Register** | **[FAILED PICK UP]** |
| **Motor Driver Board** | **PS1** | **Paper** | **[OUT OF PAPER]** |
| **Exit Sensor Board** | **PS50** | **Exit** | **[PAPER JAMMED]** |
| **Analog Board** | **PS201** | **Toner** | **[TONER EMPTY]**<br>**[TONER LOW]**<br>**[CHANGE DRUM]** |
| **Analog Board** | **SW200** | **Hook** | ——— |

**Note:**
**See TEST FUNCTIONS - SENSOR CHECK SECTION for the sensor test.**
**(#815 of Service Mode test. Refer to TEST FUNCTIONS ().)**

### 7.9.1. HOOK SWITCH

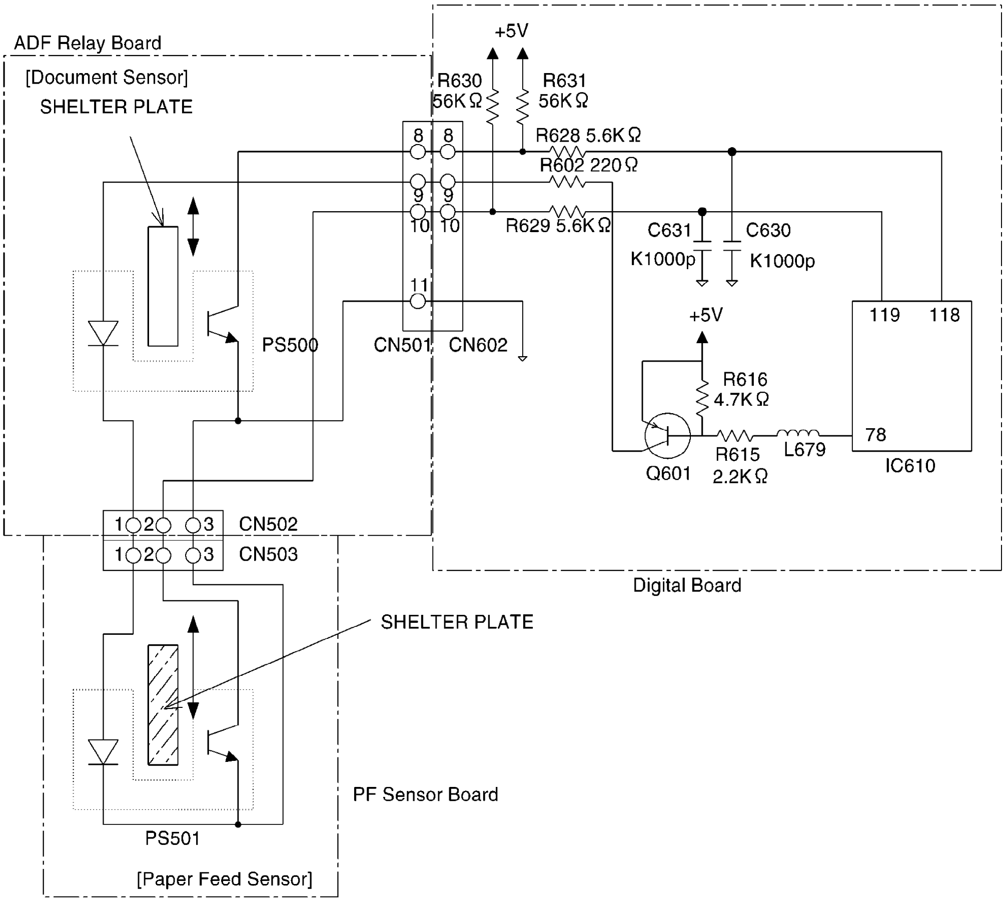
**When the handset is raised, the switch is turned ON, and the signal at pin 57 of IC606 is low.**
**When the handset is returned, the switch is turned OFF, and the signal at pin 57 of IC606 is high.**



## 7.9.2. DOCUMENT SENSOR....”CHECK DOCUMENT” AND PAPER FEED SENSOR....”REMOVE DOCUMENT”

**These Sensors detect whether or not a document is in place. When a document is detected,the shelter plate let the sensor light pass through,the photo-transistor turns ON,and the input signal of IC610-118pin /IC610-119pin becomes a low level.**

**When there is no document,the shelter plate shuts off the sensor light,the photo-transistor turns OFF,and the input signal of IC610-118pin /IC610-119pin becomes a high level.**


ADF Relay Board
[Document Sensor]
SHELTER PLATE
PS500
+5V
R630
56KΩ
R631
56KΩ
R628 5.6KΩ
R602 220Ω
R629 5.6KΩ
8
9
10
11
CN501
CN602
C631
K1000p
C630
K1000p
+5V
R616
4.7KΩ
Q601
R615
2.2KΩ
L679
119
118
78
IC610
1
2
3
CN502
CN503
Digital Board
SHELTER PLATE
PF Sensor Board
PS501
[Paper Feed Sensor]

**Document Sensor**

| | Phototransistor | Signal(IC610 - 118pin) |
|---|---|---|
| No Document | OFF | High level |
| Document Set | ON | Low level |

**Paper Feed Sensor**

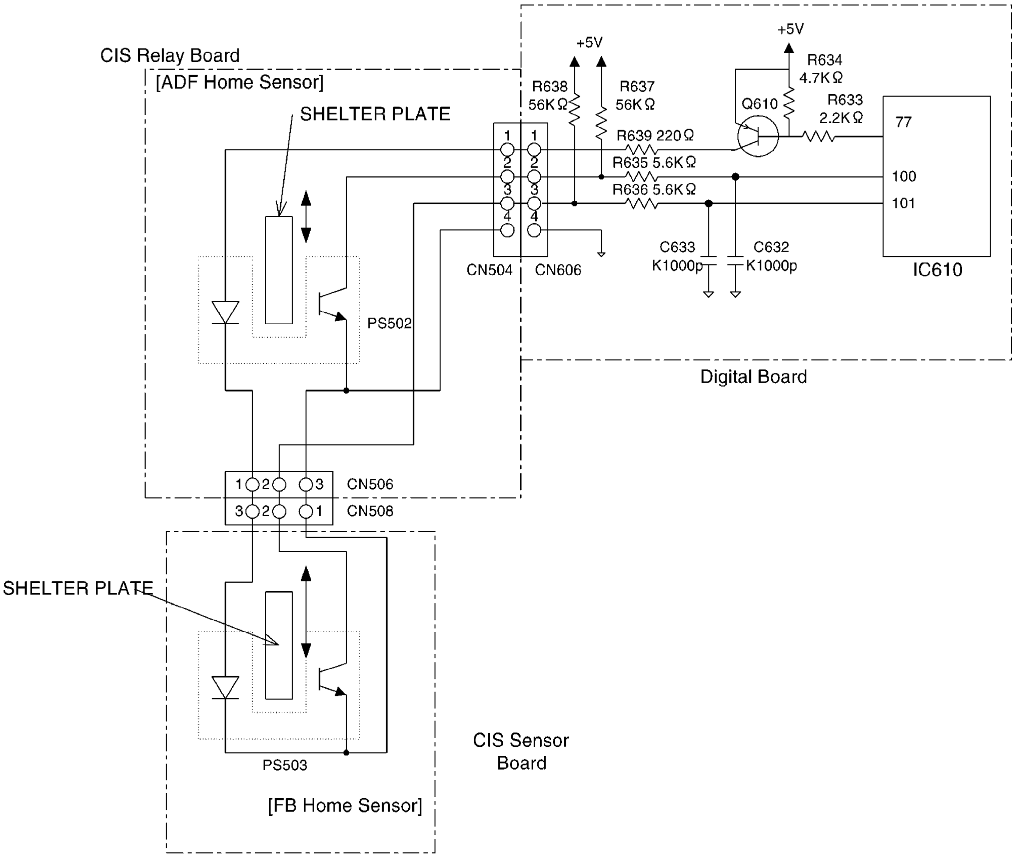
| | Phototransistor | Signal(IC610 - 119pin) |
|---|---|---|
| No Read Position | OFF | High level |
| Read Position | ON | Low level |

## 7.9.3. CIS POSITION SENSOR

**These Sensors detect whether or not CIS is in home position.**

**When the CIS is detected,the shelter plate shuts off the sensor light,the photo-transistor turns OFF,and the input signal of IC610-100pin /IC610-101pin becomes a high level.**

**When there is no CIS,the shelter plate let the sensor light pass through,the photo-transistor turns ON,and the input signal of IC610-100pin /IC610-101pin becomes a low level.**


CIS Relay Board
[ADF Home Sensor]
SHELTER PLATE
PS502
CN504
CN606
1
2
3
4
+5V
+5V
R638
56KΩ
R637
56KΩ
R634
4.7KΩ
Q610
R633
2.2KΩ
R639 220Ω
R635 5.6KΩ
R636 5.6KΩ
C633
K1000p
C632
K1000p
77
100
101
IC610
Digital Board
CN506
CN508
SHELTER PLATE
PS503
[FB Home Sensor]
CIS Sensor
Board

**ADF Home Sensor**

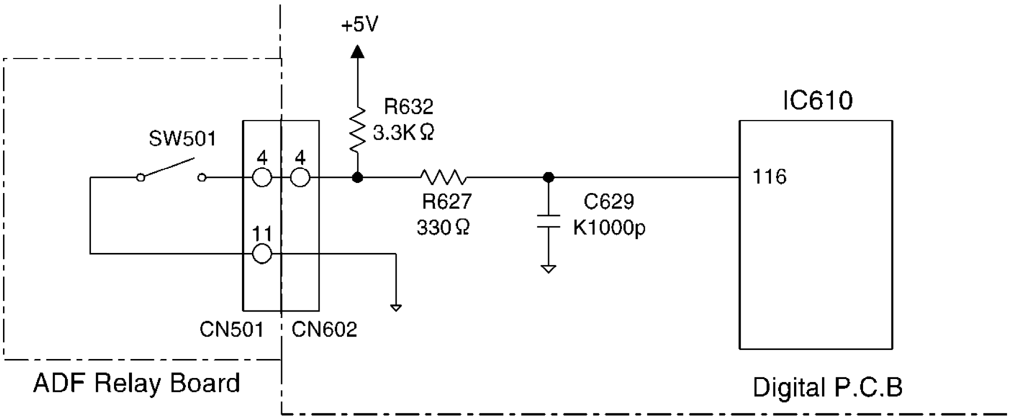
| | Phototransistor | Signal(IC610 - 100pin) |
|---|---|---|
| Home position | OFF | High level |
| Not Home position | ON | Low level |

**FB Home Sensor**

| | Phototransistor | Signal(IC610 - 101pin) |
|---|---|---|
| Home position | OFF | High level |
| Not Home position | ON | Low level |

### 7.9.4. ADF COVER OPEN SWITCH

**The Switch detects whether the ADF cover is open or closed.**
**When the ADF cover is closed,the switch turns ON,and the input signal of IC610-116pin becomes a low level.**
**When the ADF cover is open,the switch turns OFF,and the input signal of IC610-116pin becomes a high level.**

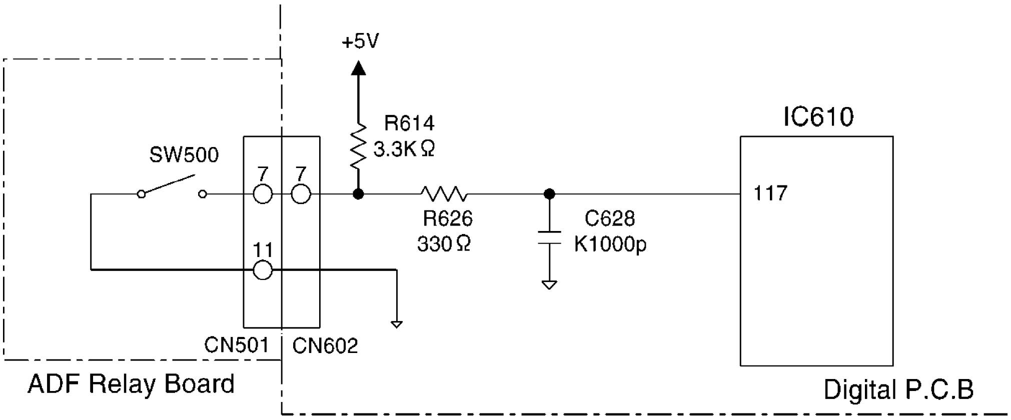

+5V
R632
3.3KΩ
IC610
SW501
4
4
116
R627
330Ω
C629
K1000p
11
CN501
CN602
ADF Relay Board
Digital P.C.B

| | Switch | Signal(IC610 - 116pin) |
|---|---|---|
| Open | OFF | High level |
| Close | ON | Low level |

### 7.9.5. FB COVER OPEN SWITCH

**The Switch detects whether the Flat Bed cover is open or closed.**
**When the Flat Bed cover is closed,the switch turns ON,and the input signal of IC610-117pin becomes a low level.**

**When the Flat Bed cover is open,the switch turns OFF,and the input signal of IC610-117pin becomes a high level.**


+5V
R614
3.3KΩ
IC610
SW500
7
7
117
R626
330Ω
C628
K1000p
11
CN501
CN602
ADF Relay Board
Digital P.C.B

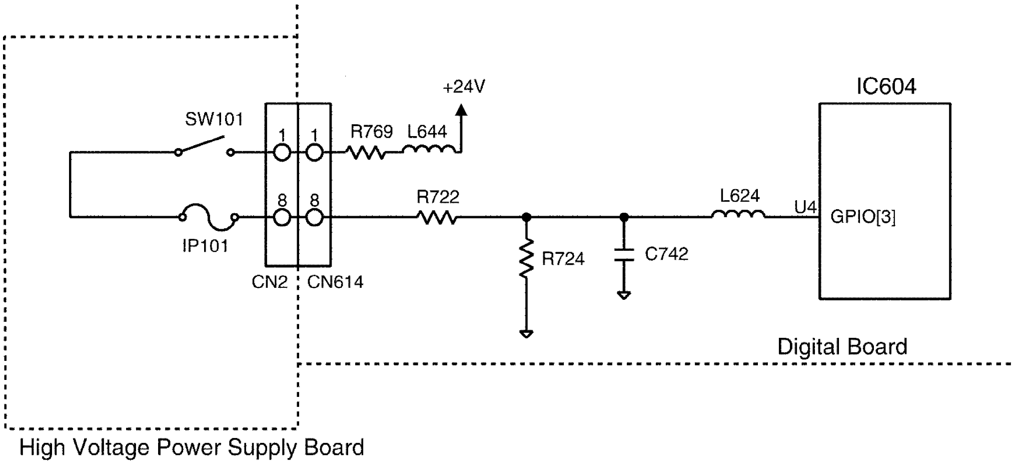
| | Switch | Signal(IC610 - 117pin) |
|---|---|---|
| Open | OFF | High level |
| Close | ON | Low level |

## 7.9.6. TOP COVER OPEN SWITCH....”COVER OPEN”

**The Switches detect whether the printer cover is open or closed.**

**When the printer cover is closed, the switches turn ON, and the input signal of IC604-U4 pin becomes a high level.**

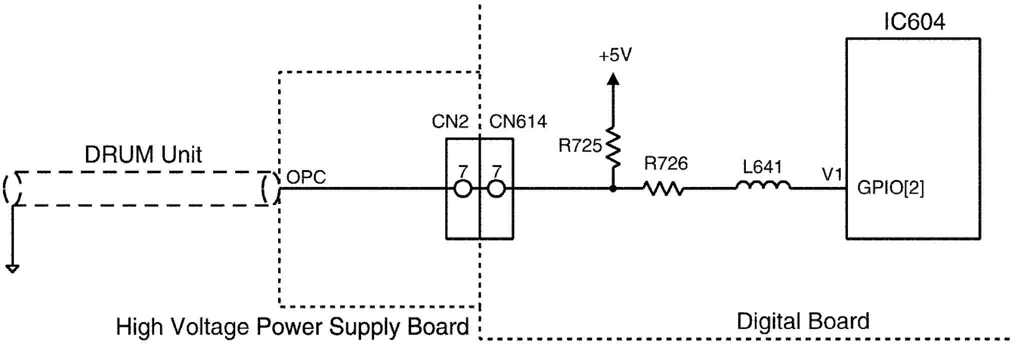
**When the printer cover is open, the switches turns OFF, and the input signal of IC604-U4 pin becomes a low level.**


+24V
IC604
SW101
1
1
R769
L644
8
8
R722
L624
U4
GPIO[3]
IP101
R724
C742
CN2
CN614
Digital Board
High Voltage Power Supply Board

| | Switch | Signal (IC604-U4 pin) |
|---|---|---|
| Open | OFF | Low level |
| Close | ON | High level |

## 7.9.7. DRUM SENSOR....”CHECK DRUM”

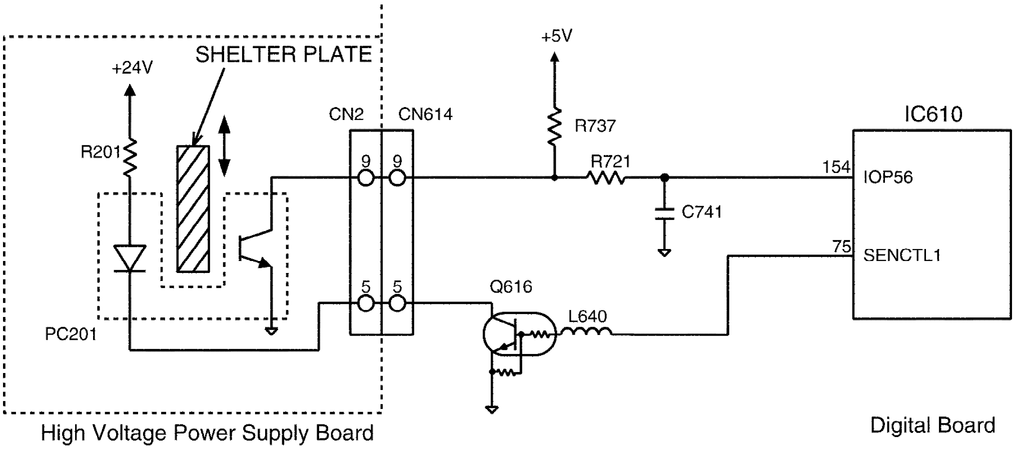
**The Switch detects whether the DRUM unit is set or not.**
**When there is the DRUM unit, the input signal of IC604-V1 pin becomes a low level.**
**When there is no DRUM unit, the input signal of IC604-V1 pin becomes a high level.**


IC604
+5V
CN2
CN614
R725
R726
L641
V1
GPIO[2]
DRUM Unit
OPC
7
7
High Voltage Power Supply Board
Digital Board

| | Signal (IC604-V1 pin) |
|---|---|
| **DRUM Set** | **Low level** |
| **No DRUM** | **High level** |

### 7.9.8. REGIST SENSOR.....”FAILED PICK UP”

**The Sensor detects whether or not the recording paper is present so that printing can start.**
**When the recording paper is detected, the shelter plate let the sensor light passing through, the photo-transistor turns ON, and the input signal of IC610-154 pin becomes a low level.**
**When there is no recording paper, the shelter plate closes the sensor light, the photo-transistor turns OFF, and the input signal of IC610-154 pin becomes a high level.**

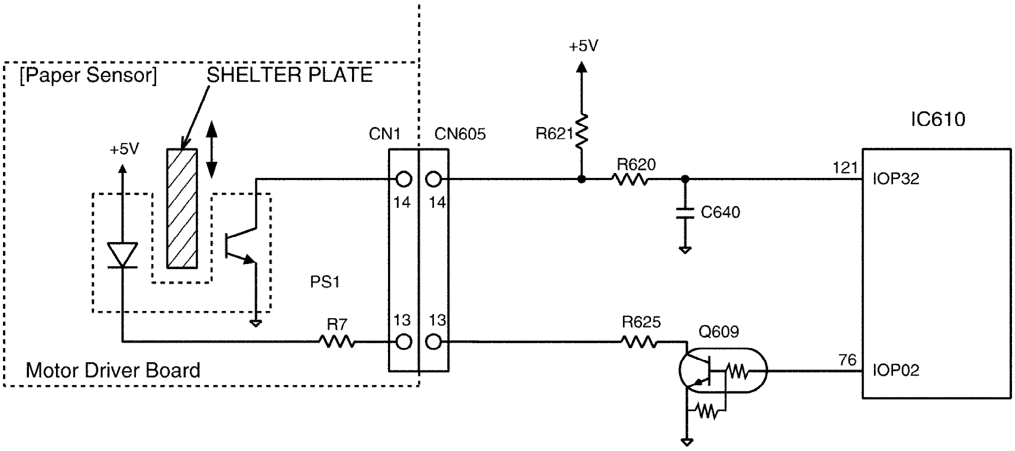

SHELTER PLATE
+24V
+5V
CN2
CN614
R201
R737
R721
IC610
154
IOP56
C741
75
SENCTL1
9
9
5
5
Q616
L640
PC201
High Voltage Power Supply Board
Digital Board

| | Photo-transistor | Signal (IC610-154 pin) |
|---|---|---|
| **No Recording Paper** | **OFF** | **High level** |
| **Recording Paper Regist** | **ON** | **Low level** |

### 7.9.9. PAPER SENSOR..... “OUT OF PAPER”

**The Sensor detects the recording paper are in place.**
**When the recording paper is detected, the shelter plate let the sensor light passing through, the**

**photo-transistor turns ON, and the input signal of IC610-121 pin becomes a low level.**
**When there is no recording paper, the shelter plate closes the sensor light, the photo-transistor turns OFF, and the input signal of IC610-121 pin becomes a high level.**

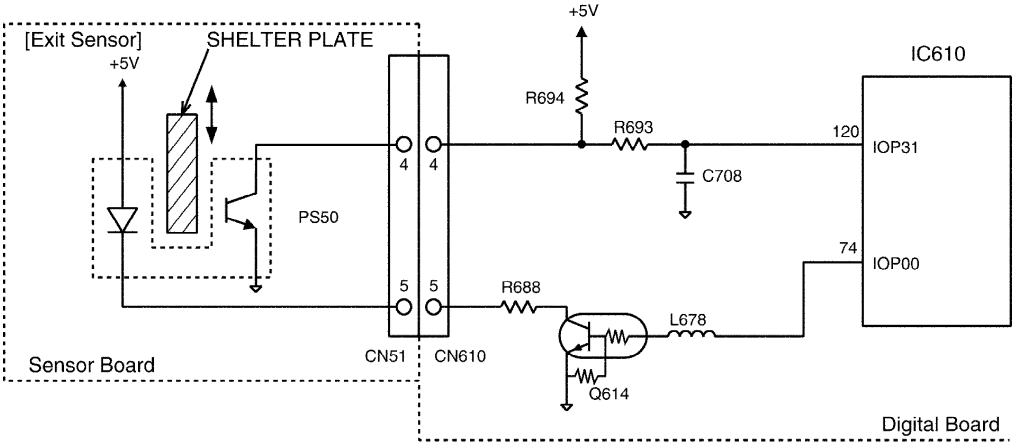


[Paper Sensor]
SHELTER PLATE
+5V
+5V
CN1
CN605
R621
IC610
R620
121
IOP32
14
14
C640
PS1
R7
13
13
R625
Q609
76
IOP02
Motor Driver Board

**[Paper Sensor]**

| | **Photo-transistor** | **Signal (IC606-178 pin)** |
|---|---|---|
| **Recording Paper Set** | **OFF** | **High level** |
| **No Recording Paper** | **ON** | **Low level** |

## 7.9.10. PAPER EXIT SENSOR..... “PAPER JAMMED”



[Exit Sensor]
SHELTER PLATE
+5V
+5V
R694
IC610
R693
120
IOP31
4
4
C708
PS50
74
IOP00
5
5
R688
L678
Q614
CN51
CN610
Sensor Board
Digital Board

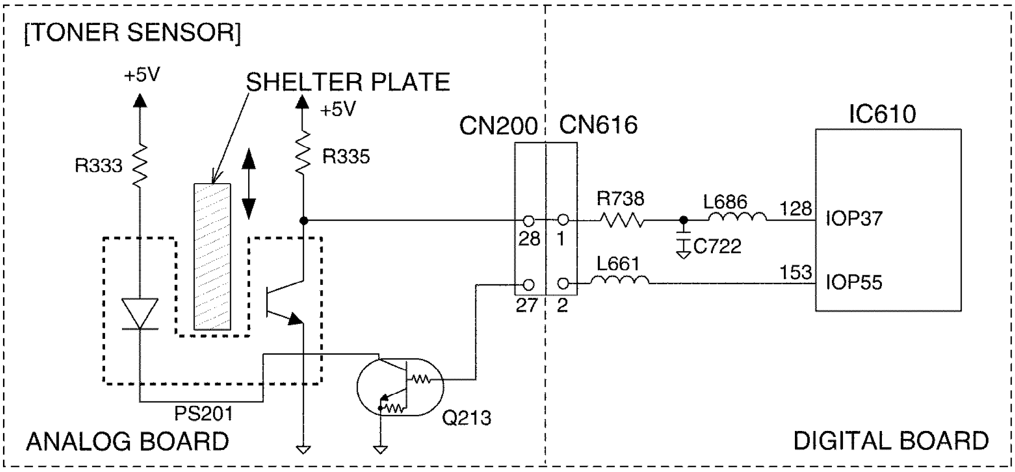
**The sensor detects whether the recording paper exit out or not.**
**When there is no recording paper at the position of the sensor, the shelter plate closes the sensor light, the photo-transistor fot tarus OFF, and the input signal of IC610-120pin becomes high level.**
**When the recording paper reach the exit sensor, the shelter plate let the sensor light passing through, the photo-transistor ON, and the input signal of IC610-120pin becomes a low level.**

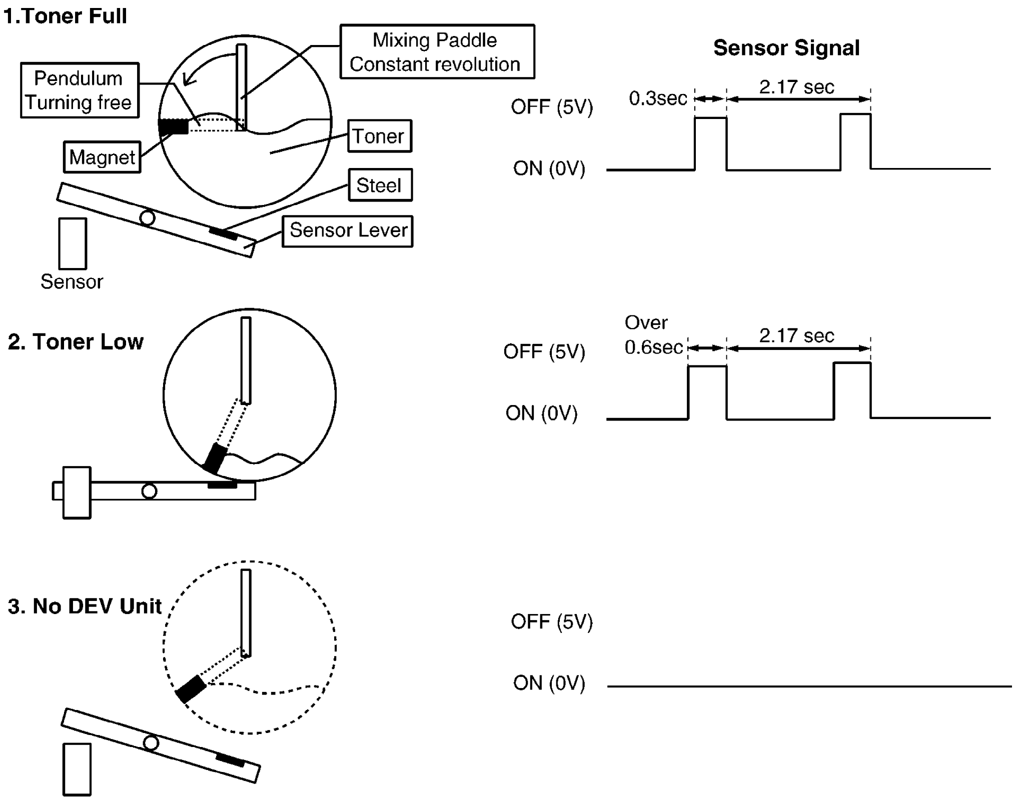
**[Exit Sensor]**

|  | **Photo-transistor** | **Signal (IC606-179 pin)** |
|---|---|---|
| **No Paper** | **OFF** | **High level** |
| **Paper Exist** | **ON** | **Low level** |

### 7.9.11. TONER SENSOR.... “TONER EMPTY”, “TONER LOW”, “CHANGE DRUM”

**The Sensor detects whether or not the Developer unit and the toner are present.**
**When there is not Development unit, the shelter plate let the sensor light passing through, the photo-transistor turns ON, and the input signal of IC610-128 pin (Digital P.C.B) becomes a low level over 9s. When the Developer unit is set, the shelter plate move with rotation of development roller, so the photo-transistor turns ON/OFF. If the time of IC610-128 pin's high level is under 600ms, there is enough toner in Developer unit, if not, toner is near empty.**


[TONER SENSOR]
+5V
SHELTER PLATE
+5V
R333
R335
CN200
CN616
IC610
R738
L686
128
IOP37
28
1
C722
L661
153
IOP55
27
2
PS201
Q213
ANALOG BOARD
DIGITAL BOARD

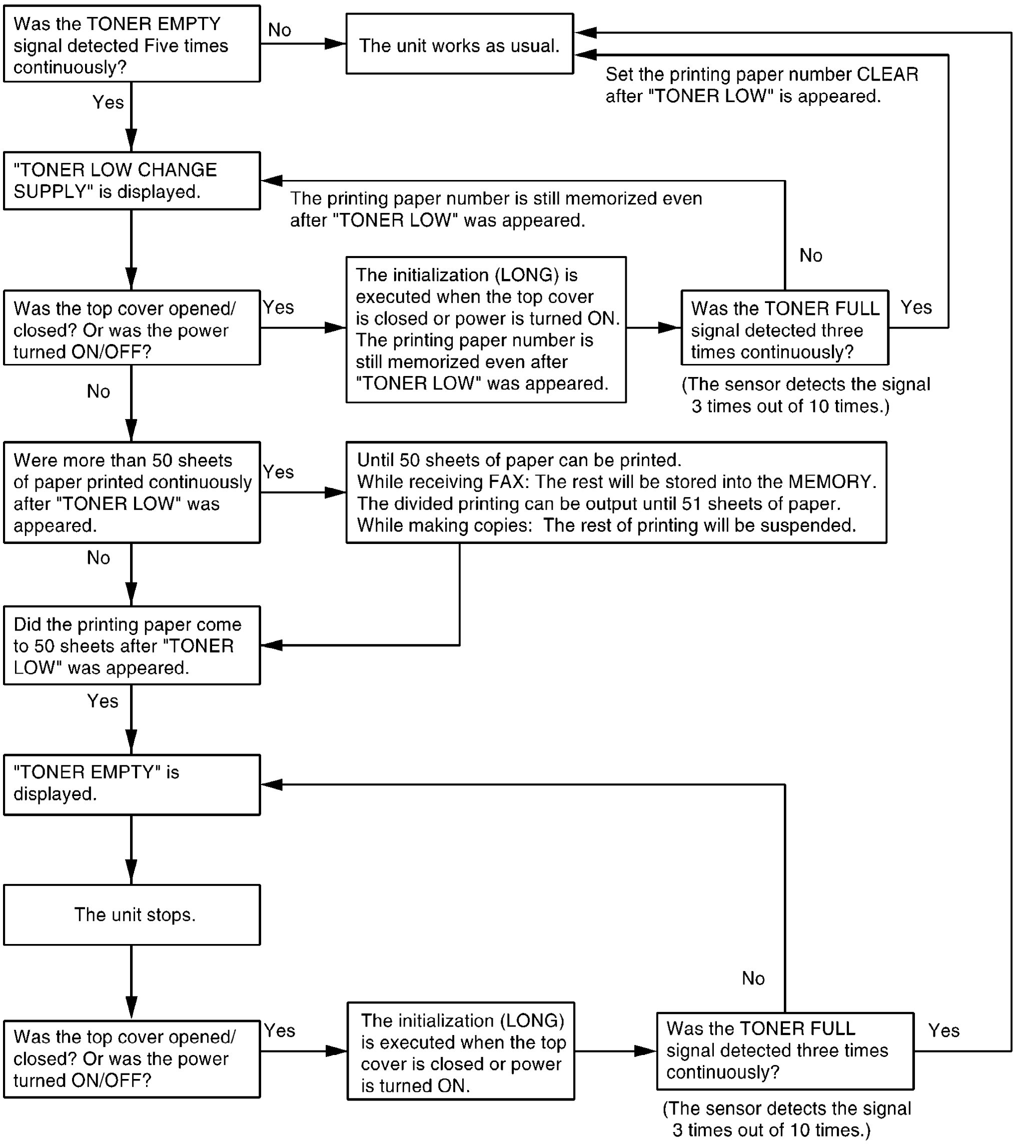

1.Toner Full
Mixing Paddle Constant revolution
Pendulum Turning free
Magnet
Toner
Steel
Sensor Lever
Sensor
Sensor Signal
OFF (5V)
ON (0V)
0.3sec
2.17 sec
2. Toner Low
OFF (5V)
ON (0V)
Over 0.6sec
2.17 sec
3. No DEV Unit
OFF (5V)
ON (0V)

**Toner Sensor**

**The rest of toner is detected by the move speed of the magnet put on the pendulum of Mixing Paddle. The pendulum is pushed up by the Mixing Paddle, then it falls down by its own weight. The rotation speed of paddle is set slower than the one of pendulum which falls down by its own weight. When the toner is still left, the pendulum falls and stops on the toner, then pushed by the paddle, it starts to rotate. When no toner is left, the pendulum falls to the bottom. Consequently the contact time between the magnet and steel becomes short when toner is left and long with no toner.**

| State | Photo-transistor | Signal (IC610-128pin) |
|---|---|---|
| Toner Set (full) | OFF time = about 0.3s | High level = about 0.3s |
| Near Empty Toner | OFF time>0.6s | High level>0.6s |
| No DEV Unit (“CHANGE DRUM“) | ON | Low level fix |

### 7.9.11.1. TONER DETECTION FLOW


Was the TONER EMPTY signal detected Five times continuously?
No
The unit works as usual.
Set the printing paper number CLEAR after "TONER LOW" is appeared.
Yes
"TONER LOW CHANGE SUPPLY" is displayed.
The printing paper number is still memorized even after "TONER LOW" was appeared.
No
Was the top cover opened/ closed? Or was the power turned ON/OFF?
Yes
The initialization (LONG) is executed when the top cover is closed or power is turned ON. The printing paper number is still memorized even after "TONER LOW" was appeared.
Was the TONER FULL signal detected three times continuously?
Yes
(The sensor detects the signal 3 times out of 10 times.)
No
Were more than 50 sheets of paper printed continuously after "TONER LOW" was appeared.
Yes
Until 50 sheets of paper can be printed.
While receiving FAX: The rest will be stored into the MEMORY.
The divided printing can be output until 51 sheets of paper.
While making copies: The rest of printing will be suspended.
No
Did the printing paper come to 50 sheets after "TONER LOW" was appeared.
Yes
"TONER EMPTY" is displayed.
The unit stops.
No
Was the top cover opened/ closed? Or was the power turned ON/OFF?
Yes
The initialization (LONG) is executed when the top cover is closed or power is turned ON.
Was the TONER FULL signal detected three times continuously?
Yes
(The sensor detects the signal 3 times out of 10 times.)

**CAUTION:**

1. **Toner low can be judged by continuous 5-times TONER LOW signal at only printing.**
   **(It is not executed at.)**
2. **Toner full can be judged by continuous 3-times TONER FULL signal at initialization.**
   **(It is not executed at printing.)**
3. **In the ordinal operation, “CHECK DRUM” is displayed when TONER EMPTY sensor does not generate a signal for 2.7 seconds.**

## 7.10. OPERATION BOARD SECTION

The unit consists of a LCD (Liquid crystal display), KEYs and LEDs (light-emitting diodes). They are controlled by the Gate Array (IC101) and ASIC (IC610: on the DIGITAL BOARD).
The key matrix table is shown below.

## 1. Key Matrix (Hard only)

| | KIN0 | KIN1 | KIN2 | KIN3 | KIN4 | KIN5 | KIN6 |
|---|---|---|---|---|---|---|---|
| KS0 | 3<br>(SW109) | #<br>(SW112) | 6<br>(SW110) | 8<br>(SW107) | 5<br>(SW106) | 2<br>(SW105) | 9<br>(SW111) |
| KS1 | REDIAL<br>(SW113) | MONITOR<br>(SW116) | HANDSET MUTE<br>(SW114) | 7<br>(SW103) | 4<br>(SW102) | 1<br>(SW101) | FLASH<br>(SW115) |
| KS2 | RESOLUTION<br>(SW133) | FAX START<br>(SW137) | SCAN<br>(SW134) | COPY<br>(SW135) | COLLATE<br>(SW132) | ---------- | STOP<br>(SW136) |
| KS3 | F3<br>(SW123) | F5<br>(SW122) | F4<br>(SW120) | F2<br>(SW121) | F1<br>(SW119) | ---------- | F6<br>(SW124) |
| KS4 | VOL+<br>(SW126) | VOL-<br>(SW129) | NEXT<br>(SW128) | MENU<br>(SW131) | HELP<br>(SW130) | CALLER ID<br>(SW125) | PREV<br>(SW127) |

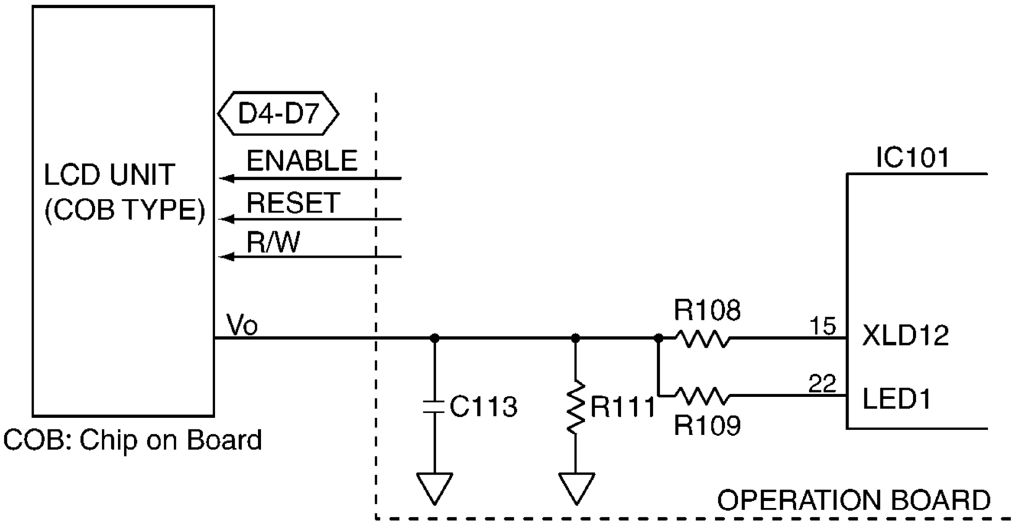
## 2. LED

### - AUTO ANSWER LED ON/OFF port---XLD8 (IC101-5)

## 7.11. LCD SECTION

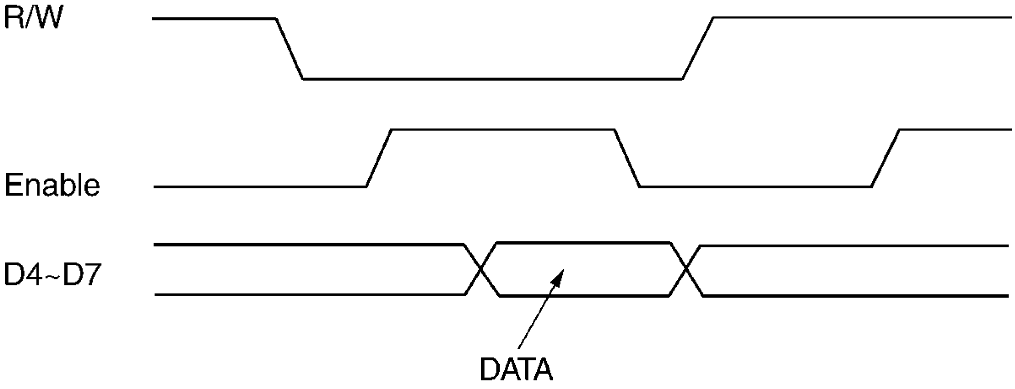
The Gate Array (IC101) works only for writing the ASCII code from the data bus (D4~D7). V0 is supplied for the crystal drive.
R130 and R134 are density control resistors.
Consequently, in this unit, the timing (positive clock) is generated by the LCD interface circuitry in the gate array (IC101).

**Circuit Diagram**


LCD UNIT
(COB TYPE)
D4-D7
ENABLE
RESET
R/W
Vo
C113
R111
R108
R109
15
22
IC101
XLD12
LED1
OPERATION BOARD

COB: Chip on Board

**Timing Chart**


R/W
Enable
D4~D7
DATA

<Density>

| Display mode | User setting | LED1 | XLD12 |
|---|---|---|---|
| 2 LINE | NORMAL<br>DARKER | H<br>L | L<br>L |
| Large | NORMAL<br>DARKER | H<br>H | Input setting<br>L |

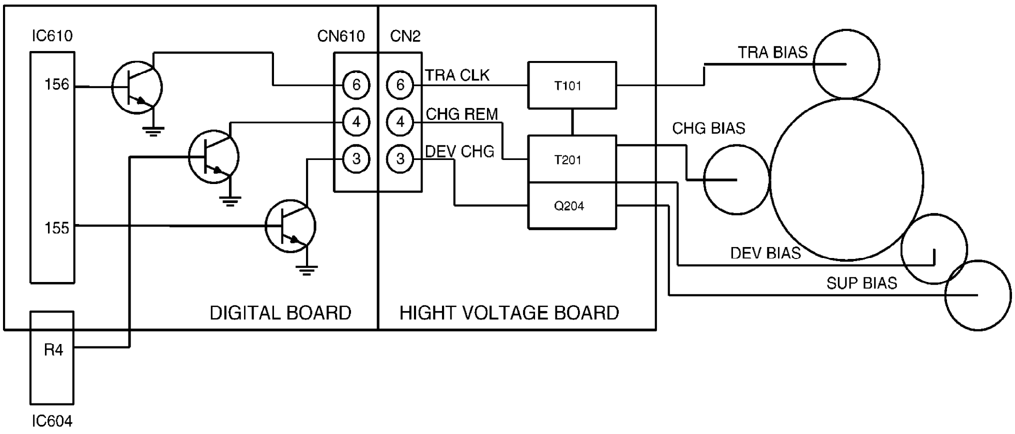
## 7.12. HVPS (High Voltage Power Supply) SECTION

### 7.12.1. HVPS SPECIFICATION

| No | Output voltage | Item | Specification | Notes |
|---|---|---|---|---|
| 1 | Electrostatic Charge CHG BIAS | Rate output voltage | -1200±35V | |
| | | Impedance range | 80M~1200M Ω | |
| | | Output format | Constant voltage | |
| 2 | Developing DEV(-) BIAS | Rate output voltage | -350±15V | |
| | | Impedance range | 20M~2000M Ω | |
| | | Output format | Constant voltage | |
| | Developing DEV(+) BIAS | Rate output voltage | +220+20-50V | |
| | | Output format | Constant voltage | |
| 3 | Supply roller SUP BIAS | Rate output voltage | -550±50V | |
| | | Impedance range | 20M~2000M Ω | |
| | | Output format | Constant voltage | |
| 4 | Transfer TRA(+) BIAS | Variable output current | +4~30 μ A | Output current varies with the printed rate. |
| | | Output voltage | +3500V Max. | |
| | | Output format | Variable Constant current | |
| | Transfer TRA(-) BIAS | Rate output voltage | -1200±100V | |
| | | Output format | Constant voltage | |

DEV BIAS is output from one of the output terminals after the DEV CHG signal selects DEV(+) BIAS and DEV(-) BIAS.
TRA BIAS is output from one of the output terminals after the TRA CLK signal selects TRA(+) BIAS and TRA(-) BIAS.

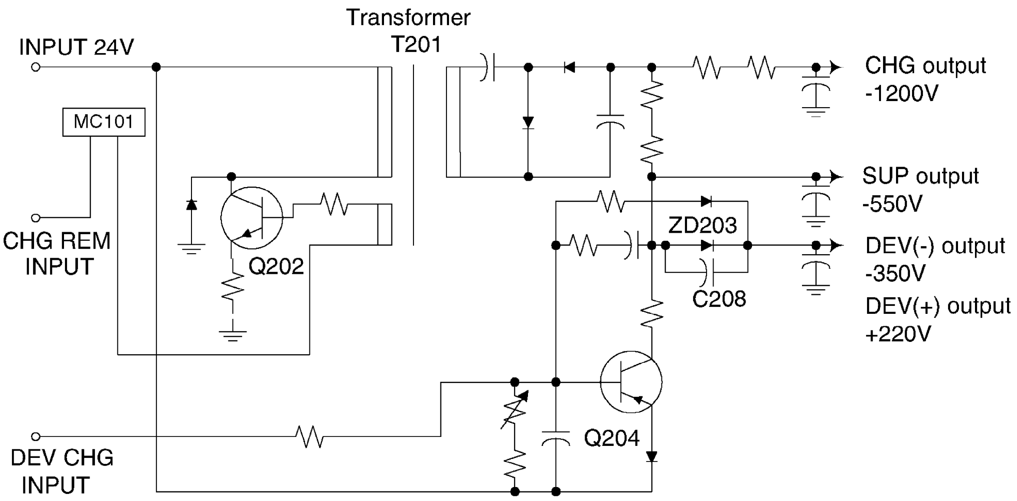
H.V.P.S.(High Voltage Power Supply) Circuit Diagram



## 7.12.2. CHG-BIAS (Charge BIAS)/SUP BIAS (Supply BIAS)/DEV(-) BIAS (Developing(-) BIAS)/DEV(+) BIAS (Developing(+) BIAS) UNIT

When the CHG REM terminal becomes “L”, the transistor Q202 turns ON by MC101, Charge BIAS(-1200V) is output from CHG OUTPUT, Supply BIAS(-550V) is output from SUP output, and Developing(-) BIAS(-350V) is output from DEV(-) BIAS.By performing the DEV(-) BIAS output, the condenser C208 is charged with an electric charge. Charging the C208 will be saturated at 50ms. After that, when DEV CHG terminal becomes “L”, Q204 turns ON, and the electric charge charged to the C208 is released. This electric charge becomes a constant voltage at ZD203, and Developing(+) BIAS(+220V) is output from DEV(+) BIAS.

Circuit Diagram

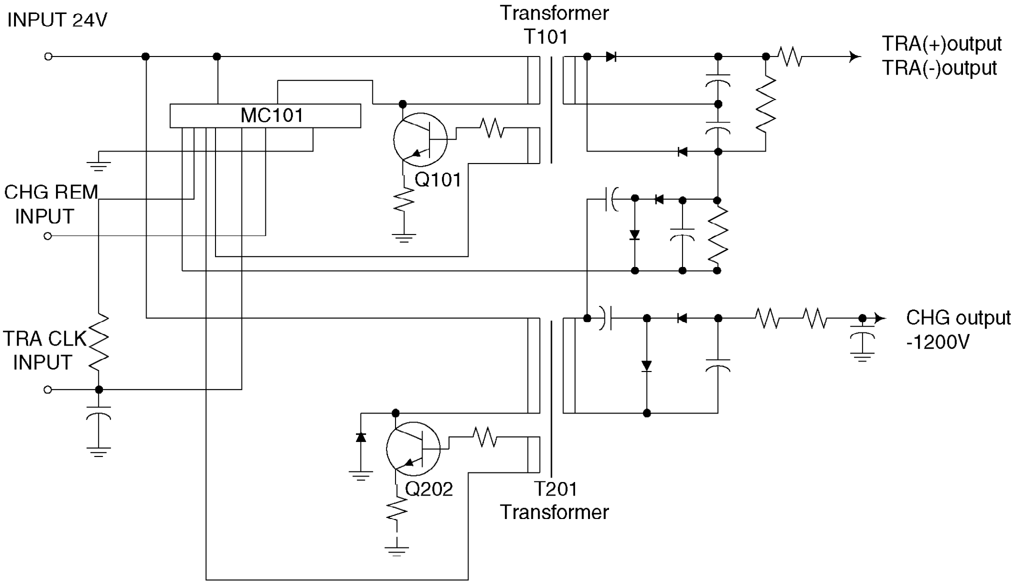


INPUT 24V
Transformer
T201
MC101
CHG output
-1200V
SUP output
-550V
ZD203
DEV(-) output
-350V
C208
DEV(+) output
+220V
CHG REM
INPUT
Q202
Q204
DEV CHG
INPUT

## 7.12.3. TRA(+) BIAS (Transfer(+) BIAS)/TRA(-) BIAS (Transfer(-) BIAS) UNIT

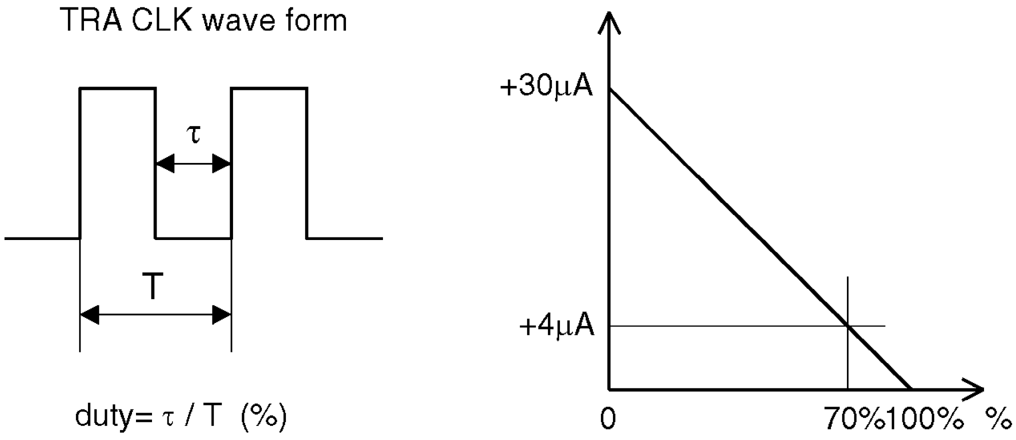
**When the CHG REM terminal is “L” and the TRA CLK terminal is “Open”, Transfer(-) BIAS(-1200V) is output from TRA OUTPUT the moment Charge BIAS(-1200V) is output from CHG OUTPUT. When 8KHz PWM (pulse-width modulation) signal is input to the TRA CLK terminal, Q101 turns ON by MC101, and TRA(+) CURRENT BIAS according to the PWM signal is output from TRA OUTPUT. The PWM signal will be turned to a constant voltage by the resistor and the condenser, and input to the MC101. The MC101 compares this voltage with the feedback voltage from T101 and controls the Q101. As for the transfer current, +30 μ A is output when DUTY of the TRA CLK input signal is 0%, or +4 μ A is output when that is 70%.**

Circuit Diagram



INPUT 24V
Transformer
T101
TRA(+)output
TRA(-)output
MC101
Q101
CHG REM
INPUT
TRA CLK
INPUT
CHG output
-1200V
Q202
T201
Transformer

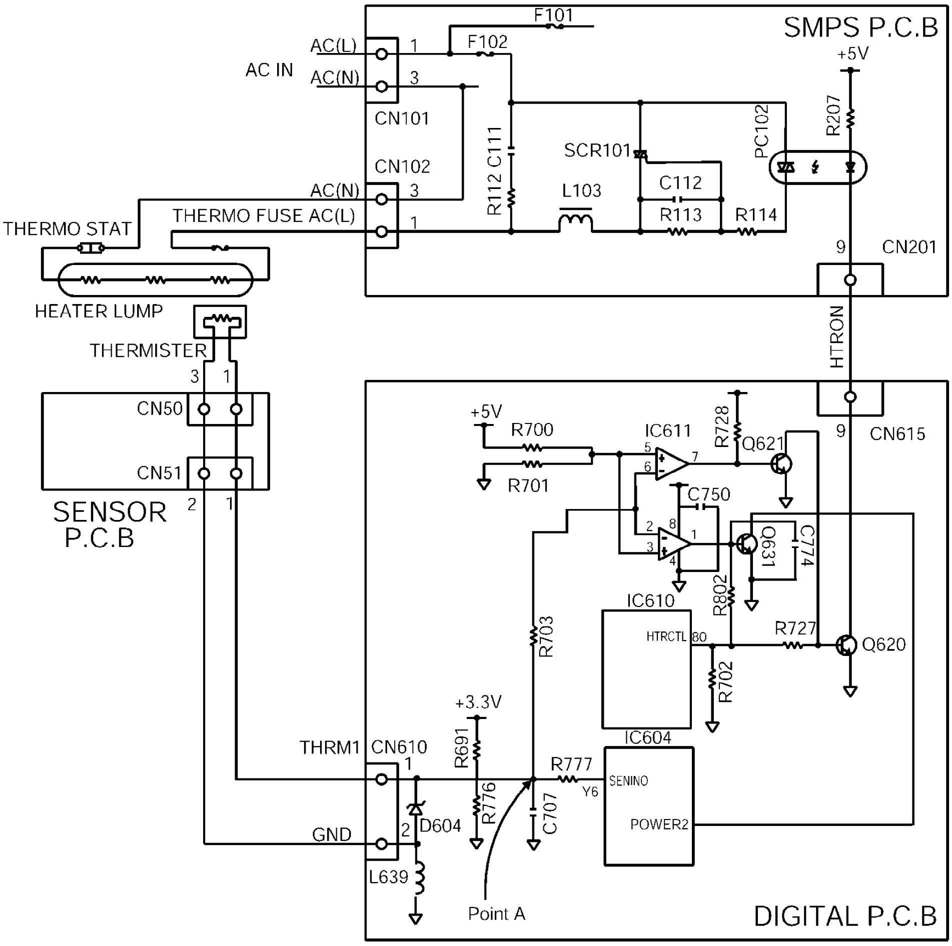
**Transfer Current Variation by PWM Input**



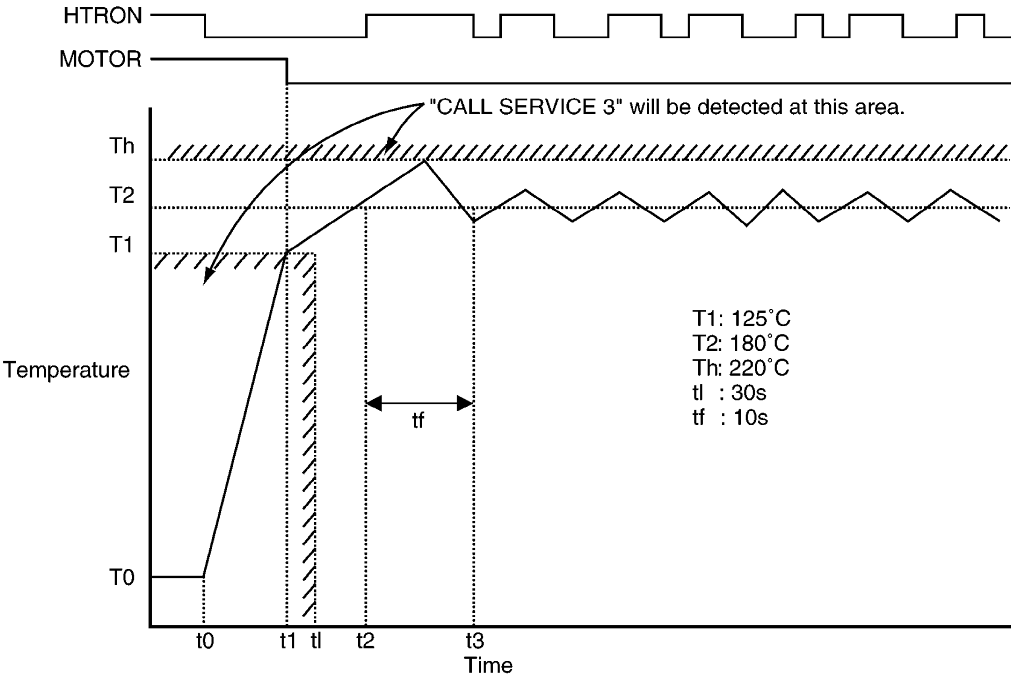
## 7.13. HEAT LAMP CONTROL CIRCUIT

**The temperature of the fixing part of the Fixing Unit is converted to a voltage by THERMISTER and input to IC604-Y6 (analog input). The heater turns ON/OFF the photo-coupler PC101 at the heater control port (IC610-80pin), and is turned ON/OFF at the triac CR101. And a thermostat and a thermo fuse are set on the AC line as the safety devices.**

**Circuit Diagram**


SMPS P.C.B
F101
F102
AC(L)
AC IN
AC(N)
1
3
CN101
+5V
R207
PC102
R112 C111
SCR101
CN102
AC(N)
3
THERMO FUSE AC(L)
1
THERMO STAT
L103
C112
R113
R114
9
CN201
HEATER LUMP
THERMISTER
HTRON
3
1
CN50
CN51
SENSOR
P.C.B
2
1
+5V
R700
R701
IC611
R728
Q621
9
CN615
C750
Q631
C774
IC610
R802
HTRCTL
80
R727
Q620
R703
R702
+3.3V
IC604
THRM1
CN610
1
R691
R777
SENINO
Y6
R776
C707
POWER2
GND
2
D604
L639
Point A
DIGITAL P.C.B

1. **Control at Printing**
   - A. **After the printing signal is received, turn ON the heater.**
   - B. **After that, turn ON the motor at the temperature T1 (about 125°C).**
   - C. **After that, control at the temperature T2 (about 180°C), and after the fixing stable time tf has passed, feed papers at the paper feeding permission time t3.**


HTRON
MOTOR
"CALL SERVICE 3" will be detected at this area.
Th
T2
T1
Temperature
T0
tf
T1: 125˚C
T2: 180˚C
Th: 220˚C
tl : 30s
tf : 10s
t0
t1
tl
t2
t3
Time

**T0: Initial Temperature (At Power OFF / Normal Temperature)**
**T1: Primary Stable Temperature (Heater Disconnection / Thermistor Loose Connection Detection Temperature)**
**T2: Secondary Stable Temperature (Paper Feeding Permission Temperature / Fixing Control Temperature)**
**T1: Primary Stable Temperature (Heater Disconnection / Thermistor Loose Connection Detection Temperature)**
**T2: Secondary Stable Temperature (Paper Feeding Permission Temperature / Fixing Control Temperature)**
**Th: Abnormal High Temperature**
**t0: Initial Time (After Printing Signal Received)**
**t1: Primary Stable Time**
**t2: Secondary Stable Time**
**t3: Paper Feeding Permission Time**
**tl: Abnormal Low Temperature Detection Time**
**tf: Fixing Stable Time**

## 2. Safety Control by Hardware

**Considering the heater remains ON due to such as a program runaway or a thermistor breakdown, the following safety devices are prepared.**

**A. If the temperature detected by the thermistor exceeds 220°C, IC611-7pin becomes High, and the heater is turned OFF forcibly.**

**B. If the temperature of the thermostat exceeds 135°C(*), the internal switch turns off to cut off the current to the heater, and the heater is turned off.**

C. If the temperature of the thermo fuse exceeds 118°C(*), the internal switch turns off to cut off the current to the heater, and the heater is turned off.

* Thermo stat and thermo fuse is apart from heat roller, so the detect temperature is low.

3. Safety Control by Software

A. Abnormal Low Temperature Detection (Heater Disconnection Detection / Thermistor Loose Connection Detection)

After the heater is ON, if the temperature of the fixing part does not reach T1 until tl, the heater will be OFF due to the abnormal low temperature detection (heater disconnection / thermistor loose connection).

B. Abnormal High Temperature Detection

If the thermistor detects the temperature Th, the heater will be OFF due to the abnormal high temperature detection.

4. Safety Control by Software

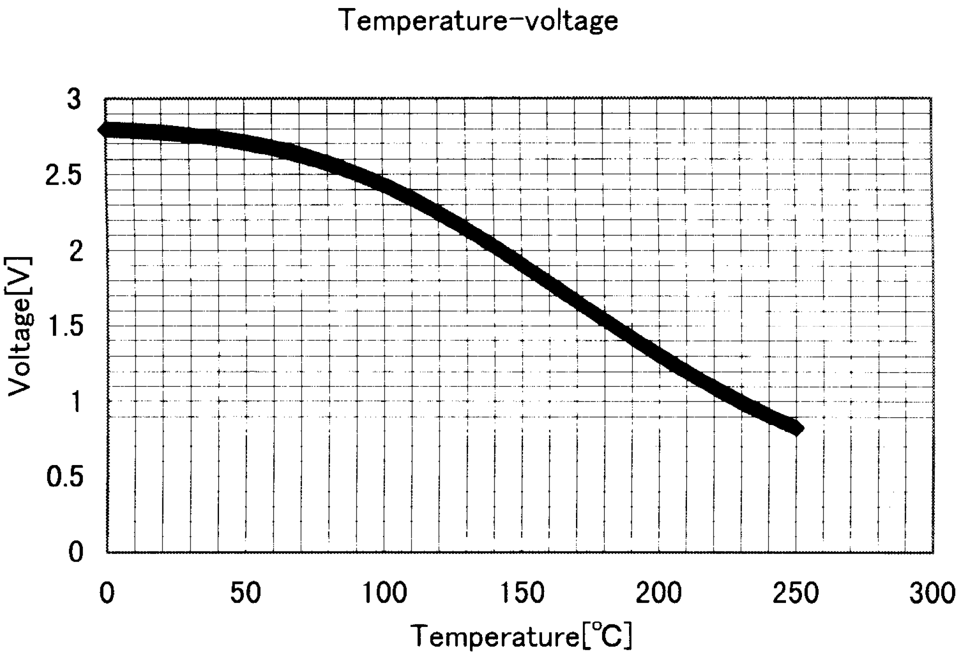
A. Abnormal Low Temperature Detection (Heater Disconnection Detection / Thermistor Loose Connection Detection)

After the heater is ON, if the temperature of the fixing part does not reach T1 until tl, the heater will be OFF due to the abnormal low temperature detection (heater disconnection / thermistor loose connection).

B. Abnormal High Temperature Detection

If the thermistor detects the temperature Th, the heater will be OFF due to the abnormal high temperature detection.

| Temperature [°C] | Register Value [K Ω ] | Voltage [V] |
|---:|---:|---:|
| 125 | 20.6 | 2.2 |
| 180 | 7.0 | 1.5 |
| 225 | 3.4 | 1.0 |



The correspondence readings between temperature measured by thermistor and HEX readings

| Temperature(°C) | HEX reading | Temperature(°C) | HEX reading | Temperature(°C) | HEX r |
|---|---|---|---|---|---|
| **0** | **3F** | **84** | **3C** | **168** | **20** |
| **1** | **3F** | **85** | **3B** | **169** | **20** |
| **2** | **3F** | **86** | **3B** | **170** | **1F** |
| **3** | **3F** | **87** | **3B** | **171** | **1F** |
| **4** | **3F** | **88** | **3B** | **172** | **1F** |
| **5** | **3F** | **89** | **3A** | **173** | **1E** |
| **6** | **3F** | **90** | **3A** | **174** | **1E** |
| **7** | **3F** | **91** | **3A** | **175** | **1D** |
| **8** | **3F** | **92** | **3A** | **176** | **1D** |
| **9** | **3F** | **93** | **3A** | **177** | **1D** |
| **10** | **3F** | **94** | **39** | **178** | **1C** |
| **11** | **3F** | **95** | **39** | **179** | **1C** |
| **12** | **3F** | **96** | **39** | **180** | **1B** |
| **13** | **3F** | **97** | **39** | **181** | **1B** |
| **14** | **3F** | **98** | **38** | **182** | **1B** |
| **15** | **3F** | **99** | **38** | **183** | **1A** |
| **16** | **3F** | **100** | **38** | **184** | **1A** |
| **17** | **3F** | **101** | **38** | **185** | **1A** |
| **18** | **3F** | **102** | **37** | **186** | **19** |
| **19** | **3F** | **103** | **37** | **187** | **19** |
| **20** | **3F** | **104** | **37** | **188** | **18** |
| **21** | **3F** | **105** | **36** | **189** | **18** |
| **22** | **3F** | **106** | **36** | **190** | **18** |
| **23** | **3F** | **107** | **36** | **191** | **17** |

| Temperature(°C) | HEX reading | Temperature(°C) | HEX reading | Temperature(°C) | HEX r |
|---|---|---|---|---|---|
| 24 | 3F | 108 | 36 | 192 | 17 |
| 25 | 3F | 109 | 35 | 193 | 17 |
| 26 | 3F | 110 | 35 | 194 | 16 |
| 27 | 3F | 111 | 35 | 195 | 16 |
| 28 | 3F | 112 | 34 | 196 | 15 |
| 29 | 3F | 113 | 34 | 197 | 15 |
| 30 | 3F | 114 | 34 | 198 | 15 |
| 31 | 3F | 115 | 34 | 199 | 14 |
| 32 | 3F | 116 | 33 | 200 | 14 |
| 33 | 3F | 117 | 33 | 201 | 14 |
| 34 | 3F | 118 | 33 | 202 | 13 |
| 35 | 3F | 119 | 32 | 203 | 13 |
| 36 | 3F | 120 | 32 | 204 | 13 |
| 37 | 3F | 121 | 32 | 205 | 12 |
| 38 | 3F | 122 | 31 | 206 | 12 |
| 39 | 3F | 123 | 31 | 207 | 12 |
| 40 | 3F | 124 | 31 | 208 | 11 |
| 41 | 3F | 125 | 30 | 209 | 11 |
| 42 | 3F | 126 | 30 | 210 | 11 |
| 43 | 3F | 127 | 30 | 211 | 10 |
| 44 | 3F | 128 | 2F | 212 | 10 |
| 45 | 3F | 129 | 2F | 213 | 0F |
| 46 | 3F | 130 | 2F | 214 | 0F |
| 47 | 3F | 131 | 2E | 215 | 0F |
| 48 | 3F | 132 | 2E | 216 | 0E |
| 49 | 3F | 133 | 2D | 217 | 0E |
| 50 | 3F | 134 | 2D | 218 | 0E |
| 51 | 3F | 135 | 2D | 219 | 0E |
| 52 | 3F | 136 | 2C | 220 | 0D |
| 53 | 3F | 137 | 2C | 221 | 0D |
| 54 | 3F | 138 | 2C | 222 | 0D |
| 55 | 3F | 139 | 2B | 223 | 0C |
| 56 | 3F | 140 | 2B | 224 | 0C |
| 57 | 3F | 141 | 2B | 225 | 0C |
| 58 | 3F | 142 | 2A | 226 | 0B |
| 59 | 3F | 143 | 2A | 227 | 0B |
| 60 | 3F | 144 | 29 | 228 | 0B |
| 61 | 3F | 145 | 29 | 229 | 0A |
| 62 | 3F | 146 | 29 | 230 | 0A |
| 63 | 3F | 147 | 28 | 231 | 0A |
| 64 | 3F | 148 | 28 | 232 | 0A |
| 65 | 3F | 149 | 28 | 233 | 09 |
| 66 | 3F | 150 | 27 | 234 | 09 |
| 67 | 3F | 151 | 27 | 235 | 09 |
| 68 | 3E | 152 | 26 | 236 | 08 |

| Temperature(°C) | HEX reading | Temperature(°C) | HEX reading | Temperature(°C) | HEX r |
|---|---|---|---|---|---|
| 69 | 3E | 153 | 26 | 237 | 08 |
| 70 | 3E | 154 | 26 | 238 | 08 |
| 71 | 3E | 155 | 25 | 239 | 08 |
| 72 | 3E | 156 | 25 | 240 | 07 |
| 73 | 3E | 157 | 24 | 241 | 07 |
| 74 | 3D | 158 | 24 | 242 | 07 |
| 75 | 3D | 159 | 24 | 243 | 07 |
| 76 | 3D | 160 | 23 | 244 | 06 |
| 77 | 3D | 161 | 23 | 245 | 06 |
| 78 | 3D | 162 | 22 | 246 | 06 |
| 79 | 3D | 163 | 22 | 247 | 05 |
| 80 | 3C | 164 | 22 | 248 | 05 |
| 81 | 3C | 165 | 21 | 249 | 05 |
| 82 | 3C | 166 | 21 | 250 | 20 |
| 83 | 3C | 167 | 21 |  |  |

**Note:**
**The value is displayed on LCD at TEST FUNCTIONS () [#815].**

## 7.14. POWER SUPPLY BOARD SECTION

**This power supply board uses the switching regulator method.**

### [Input Circuit]

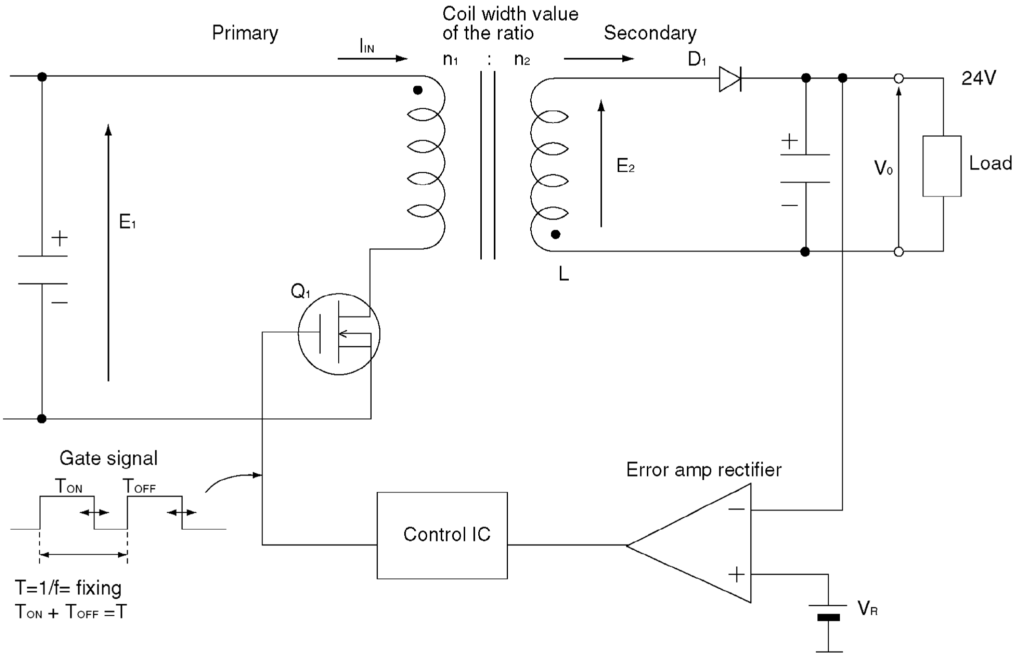
**The input current goes into the input rectifier circuit through the filter circuit. The filter circuit decreases the noise voltage and the noise electric field strength.**

### [Rectifier Circuit]

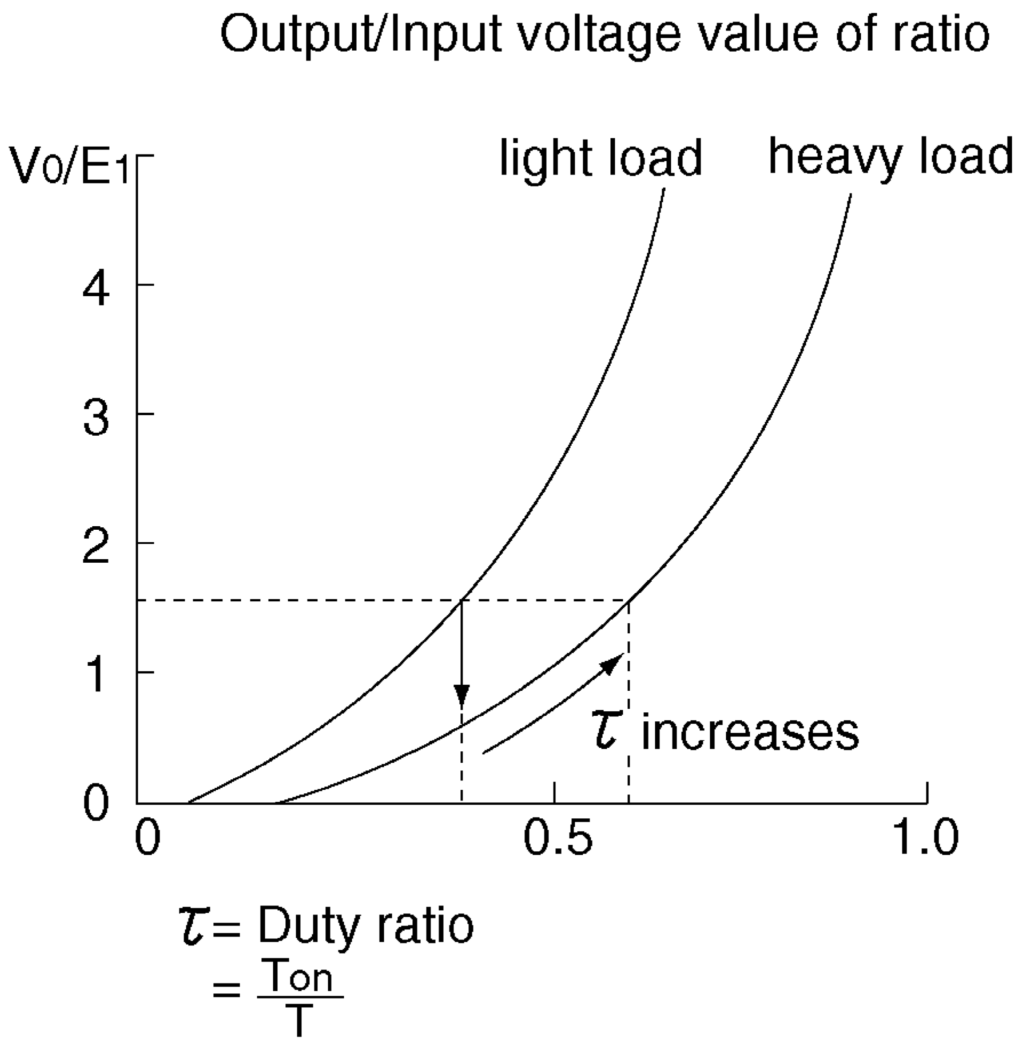
**The input current is rectified by D101~ D104 and charges C106 to make DC voltage. Then it supplies power to the converter circuit.**

### [Kick-on voltage circuit]

**Bias is applied to the Q101 gate via this circuit when the AC power is turned on and Q101 begins operating.**


Coil width value
of the ratio
Primary
Secondary
$I_{IN}$
$n_1$ : $n_2$
$D_1$
24V
+
−
$E_1$
$E_2$
$V_0$
Load
L
$Q_1$
Gate signal
$T_{ON}$
$T_{OFF}$
Error amp rectifier
Control IC
−
+
$V_R$
T=1/f= fixing
$T_{ON}$ + $T_{OFF}$ =T

**The following is an overview of how the power supply unit is controlled.**
**The control method of this power supply unit is pulse width modulation.**
**When $Q_1$ is ON, the energy is charged in the transfer primary coil according to $E_1$. When $Q_1$ is OFF, the energy is output from the secondary transfer as follows.**
**L → $D_1$ → Load → L**
**Then the power is supplied to the Load. When $Q_1$ is ON, power is not output from the secondary side. The output voltage is fed back in the control IC according to the error amp rectifier. Then depending on how $T_{ON}$ is controlled, stabilization occurs. Also, when the current load becomes too large, in order to decrease the voltage output, the increase in $T$ is controlled and the output voltage is stabilized.**
**Therefore, basically the timing: Ton/Toff of Q1 controls the output voltage.**



**[Surge Absorber Circuit]**
**This circuit is for absorbing surge voltage generated by the transformer.**

**[Control Circuit and Detecting Circuit]**
**The control circuit amplifies the output with increased voltage detected in the error detecting circuit. Then it drives the main transistor.**
**In this power supply, the duty ratio is defined by changing the ON period of the main transistor. This is shown as follows.**
**When the output voltage of the 24V circuit increases, the current of the photo coupler PC101 increases, the pulse width of the output control IC becomes narrower and the ON period of Q101 becomes shorter.**

**[Over Current Limiter (O.C.L)]**
**The highest drain current (Q101) is limited by a limiter circuit (IC101) of 24V. The 24V output is limited by this circuit.**

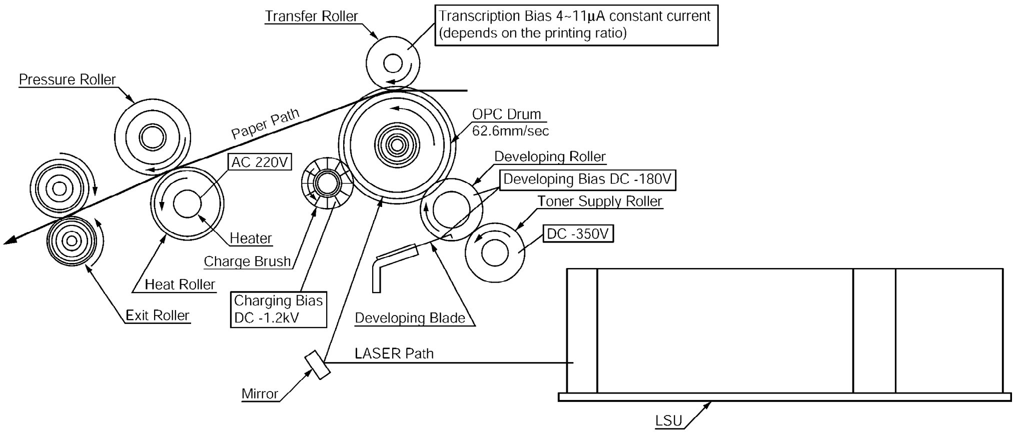
**[Over Voltage Circuit]**
**If the 24V output increases because the error detecting circuit or control circuit is broken, IC101 will recognize this signal and output becomes 0V.**

**Dummy load method (to quickly check the power supply output)**
**Refer to POWER SUPPLY BOARD SECTION,] ().**

# 8. REFERENCE MATERIALS DATA

## 8.1. PRINTING OPERATION PRINCIPLE

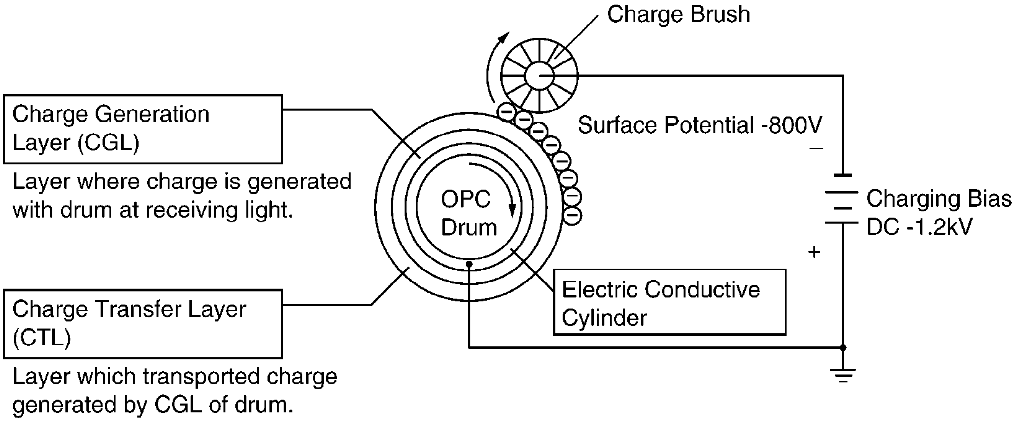
### 8.1.1. PROCESS CHART AND PROCESS BIAS


Transfer Roller
Transcription Bias 4~11µA constant current
(depends on the printing ratio)
Pressure Roller
Paper Path
OPC Drum
62.6mm/sec
AC 220V
Developing Roller
Developing Bias DC -180V
Toner Supply Roller
DC -350V
Heater
Charge Brush
Heat Roller
Charging Bias
DC -1.2kV
Exit Roller
Developing Blade
LASER Path
Mirror
LSU

### 8.1.2. CHARGING

**Charging is the stage that keeps the surface of the sensitive drum a fixed electric potential. The sensitive drum is the Organic Photo Conductor (OPC), which is a electric conductive cylinder whose surface is covered with the Charge Generation Layer (CGL) and Charge Transfer Layer (CTL).**
**When the charging bias (DC -1.2 Kiev) is added and the minus charge is supplied to the charge brush while charging, the whole surface potential of the drum is -800V.**

**Charging Part**

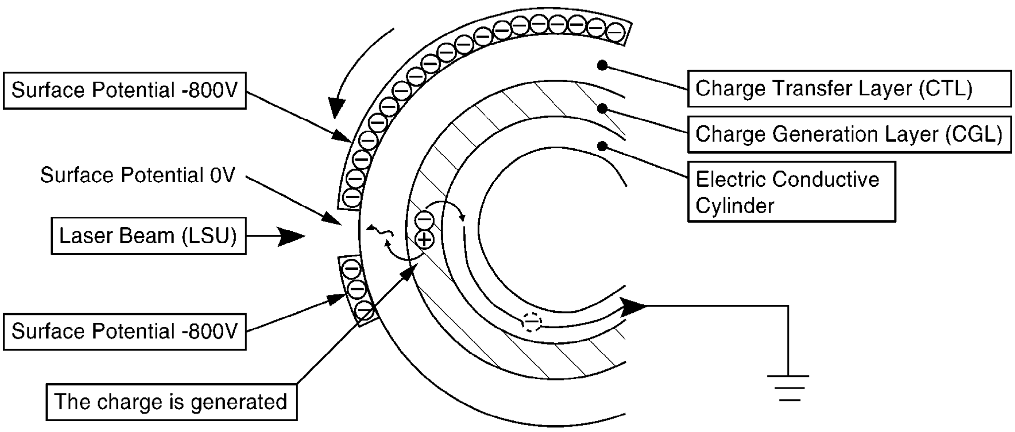

Charge Brush
Charge Generation Layer (CGL)
Layer where charge is generated with drum at receiving light.
Surface Potential -800V
–
OPC Drum
Charging Bias
DC -1.2kV
+
Electric Conductive Cylinder
Charge Transfer Layer (CTL)
Layer which transported charge generated by CGL of drum.

### 8.1.3. EXPOSING

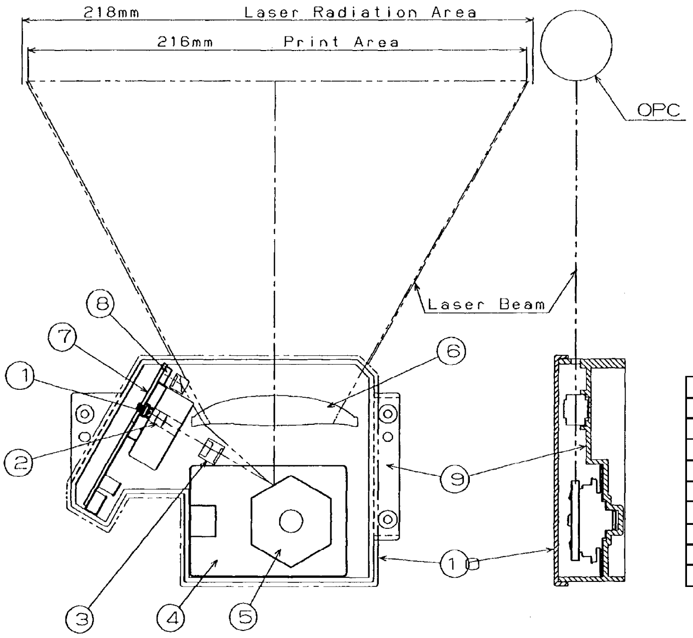
**When the drum which is charged with the fixed electric charge is irradiated by the laser beam, the plus charge and minus charge are generated at the Charge Generation Layer. Passing through the Charge Transfer Layer which conducts the plus charge, the minus-charged drum's surface is neutralized to be skipped. Then the minus charge goes to the ground from the electric conductive cylinder. Consequently the charge of the part which is not exposed remains as it is, and the electric potential of the scanned part changes.**

**At that time an invisible image is created on the drum.**

Exposing Part


Surface Potential -800V
Surface Potential 0V
Laser Beam (LSU)
Surface Potential -800V
The charge is generated
Charge Transfer Layer (CTL)
Charge Generation Layer (CGL)
Electric Conductive Cylinder

### 8.1.4. LASER SCANNING UNIT LOCATIONS


218mm
Laser Radiation Area
216mm
Print Area
OPC
Laser Beam
①
②
③
④
⑤
⑥
⑦
⑧
⑨
10

| | |
|---|---|
| 10 | Cover |
| 9 | Housing |
| 8 | Pin Photodiode |
| 7 | LD Driving Circuit |
| 6 | fq Lens |
| 5 | Polygon Mirror |
| 4 | Scanning Motor Driving Circuit |
| 3 | Cylindrical Lens |
| 2 | Collimator Lens |
| 1 | Semiconductor Laser Diode |

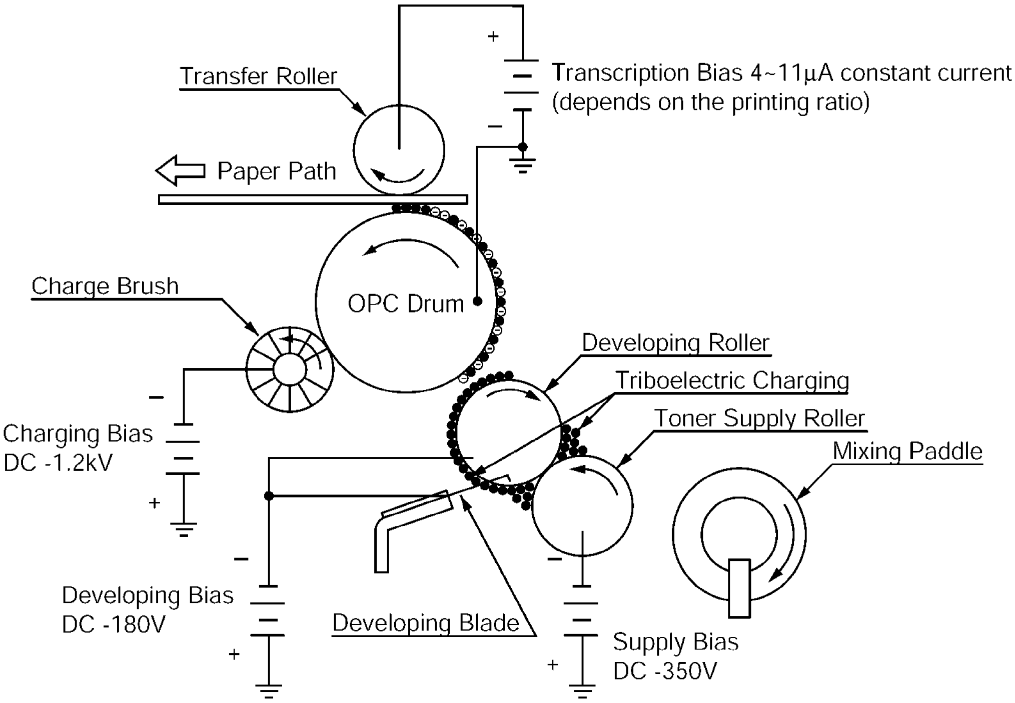
### 8.1.5. DEVELOPING AND TRANSCRIPTION

**The developing is the stage that the OPC drum with an invisible image is changed to visible by the toner. The developer consists of mixing paddle, toner supply roller, developing roller, developing blade and OPC drum. The bias voltage is added to the developing roller (DC -180V) and toner supply roller (DC -350V). Firstly the toner is mixed up in the mixing paddle and minus-charged by triboelectricity, then led to the toner supply roller. Secondly the potential difference causes to send the toner to the developing roller from the toner supply roller. The supplied**

toner to the developing roller is kept to a certain layer thickness by the developing blade and also it is charged by triboelectricity. Consequently the toner is transferred to the surface of the exposed OPC drum by the potential difference between the developing roller and OPC drum's surface.

The transcription is the stage that the created image on the OPC drum is transferred to the paper. When the transfer roller is plus-charged with the image, the minus-charged toner particles are gathered on the surface of the drum and transferred to the paper.

**Developing and Transcription Part**

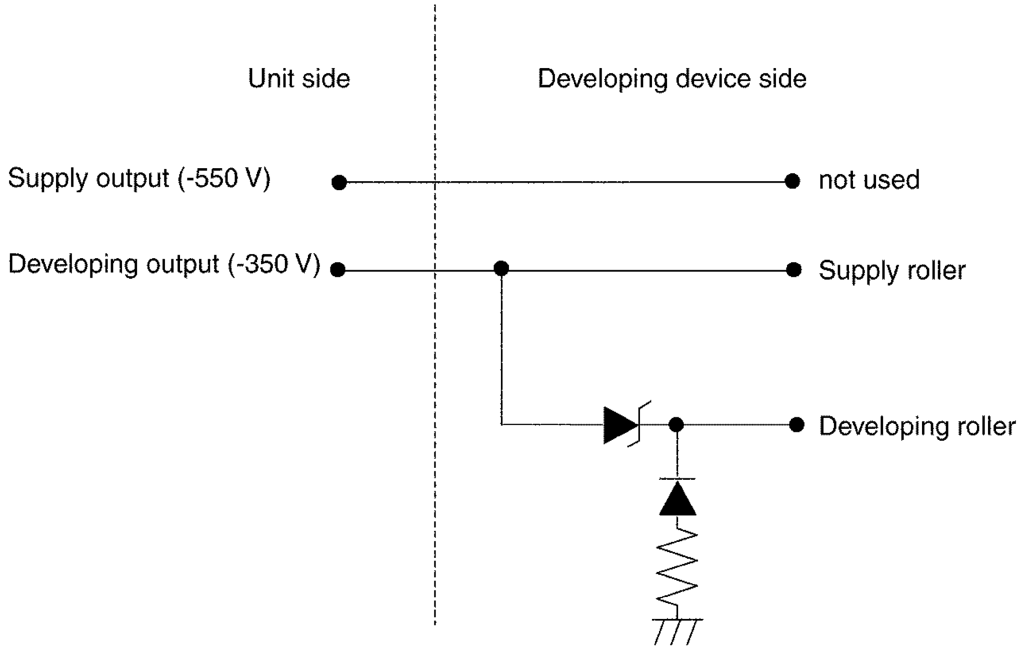

+
Transcription Bias 4~11µA constant current (depends on the printing ratio)
−
Transfer Roller
Paper Path
Charge Brush
OPC Drum
Developing Roller
Triboelectric Charging
Toner Supply Roller
Mixing Paddle
−
Charging Bias
DC -1.2kV
+
−
Developing Bias
DC -180V
+
Developing Blade
−
Supply Bias
DC -350V
+

The values of developing bias and supply bias are different from the ones described in the Service Manual for FL501.

The biases output from the unit of FL501,FLM551 and FLB751(FLB750) have the same voltage. However, the developing device of FA78X(FA78A) converts the developing and supply biases inside the developing device to improve the image quality.

|  | FA77X(FA77A) developing device | FA78X(FA78A) developing device |
|---|---|---|
| Developing bias | -350V | -180V |
| Supply bias | -550V | -350V |

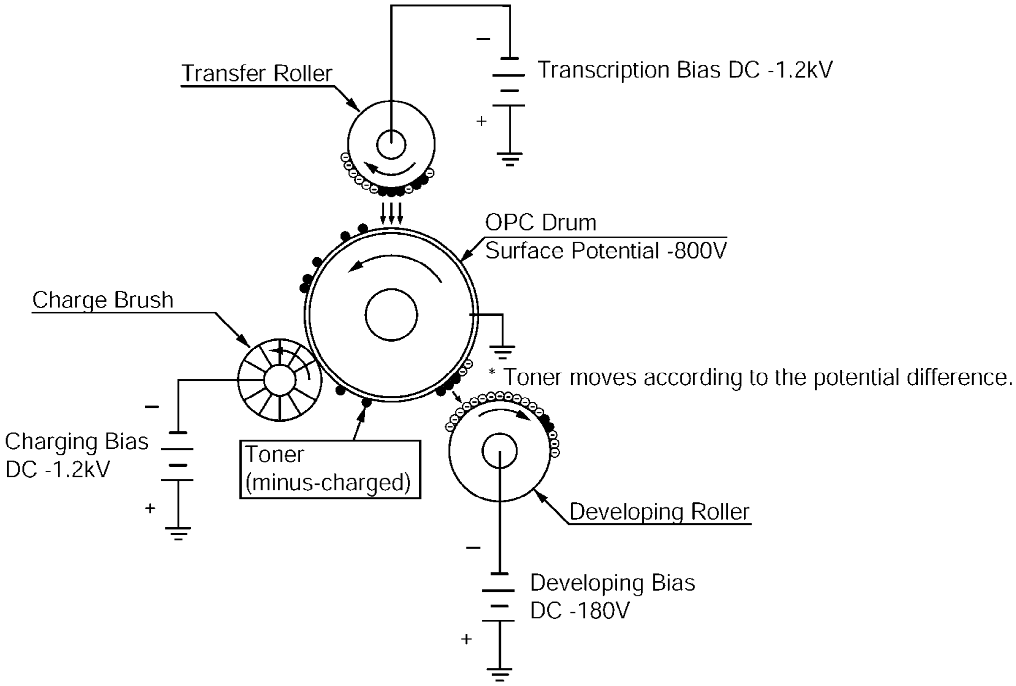
Inside voltage conversion circuit of the developing device


Unit side
Developing device side
Supply output (-550 V)
not used
Developing output (-350 V)
Supply roller
Developing roller

### 8.1.6. CLEANING

**The toner attached to the surface of the OPC drum is transferred to the paper at the transcription stage, but a part of the toner remains. The cleaning is the stage that cleans the remain toner after the transcription stage. The remain toner on the drum and the toner which was attached to the place where the laser beam didn't scan are gathered to the developing roller to be used again. When no paper is supplied, the transcription roller is minus-charged to eliminate the minus-charged toner.**

Cleaning Part

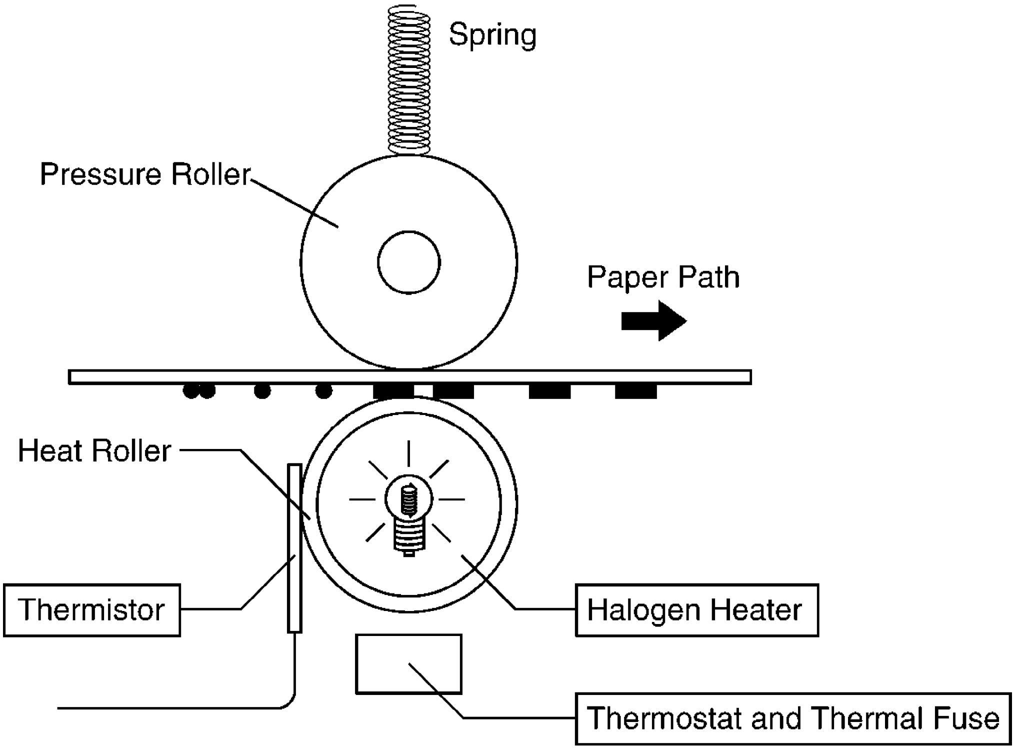

Transfer Roller
Transcription Bias DC -1.2kV
OPC Drum
Surface Potential -800V
Charge Brush
* Toner moves according to the potential difference.
Charging Bias
DC -1.2kV
Toner
(minus-charged)
Developing Roller
Developing Bias
DC -180V

### 8.1.7. FIXING

**On the process of the transcription, the transferred toner is weakly attached on the paper. Fixing means the process to fix the toner on the paper permanently. The fixing part melts the**

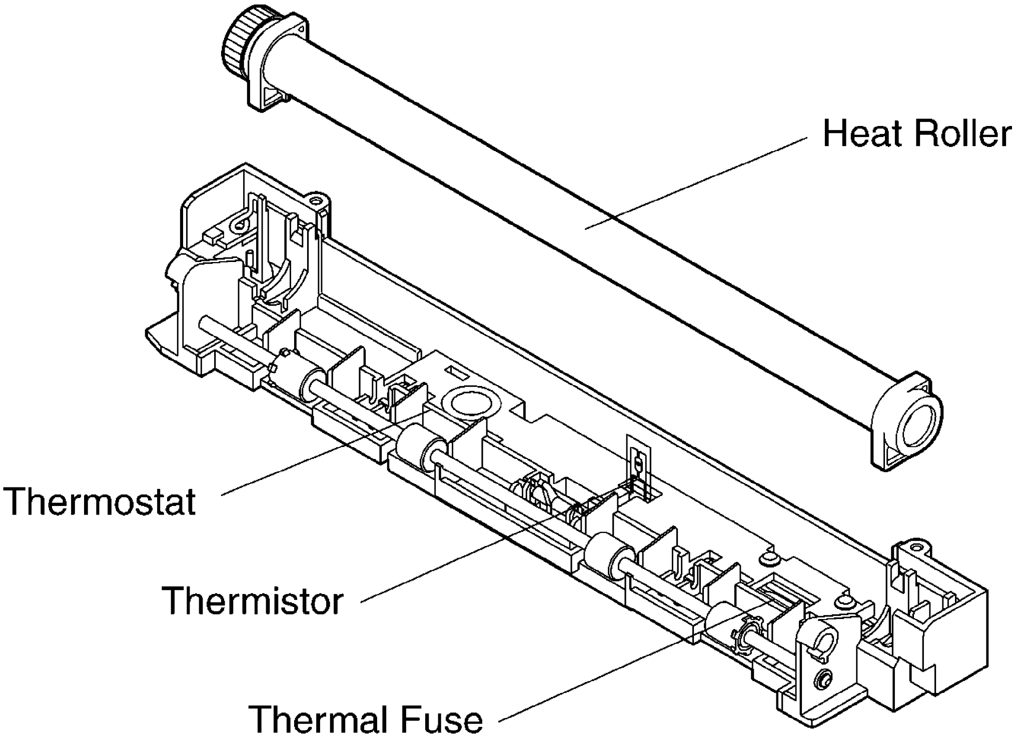
**toner at the high temperature using the halogen heater. The toner is fixed on the paper by the heat and pressure through the fixing part with the image. The surface of the heat roller is rosined by Teflon and lubricated to prevent from attaching the toners. The press roller is made of silicon, and its spring compresses the melted toner.**

**Fixing Part**



**The fixing part becomes high temperature, so the thermistor and the thermal fuse are provided.**

1. **Thermistor**
   **The thermistor touches the heat roller and check the temperature to feed back to the control circuit. The surface temperature should be kept 178 °C while printing.**
2. **The thermal fuse**
   **The thermal fuse plays the role to prevent the heat roller from rising to abnormal high temperature. The thermal fuse is located near the heat roller and turns OFF the power when the temperature around the thermal fuse becomes over 121°C. Once the thermal fuse is turned OFF, it will not be turned ON again.**
3. **Thermostat**
   **The thermostat takes the same role with the thermal fuse. The thermostat is located near the heat roller, and it turns OFF the power when the temperature around the thermostat becomes over 135°C.**



## 8.1.8. IMAGE READING

**The Image Reading Part feeds and ejects the document when copying or scanning.**
**The image reading part consists of the followings.**

### 8.1.8.1. Copying with the Automatic Document Feeder

**The automatic document feeder consists of separation roller, document feed roller, separation pad, springs, etc. It divides the documents and transfers to the reading part, then stacks the documents on the document guide when finished reading.**
**This automatic document feeder is affordable until 15 documents at once. When the user set a document on the document feeder and the top of the document is touched, the document detection sensor is turned ON and beep tone sounds, then the motor is driven.**
**The driven motor feeds the document and transfers it a little. When the printing part is ready for reading the document, the motor is driven again by the operation of the user to move the roller at a fixed speed. The documents are fed one by one separated by the separation pad. The spring plate adds the pressure to the document so that the separation pad can separate the documents properly. Spring plate helps the document endure the pressure of separation pad to be fed smoothly. The document is ejected document stacker.**

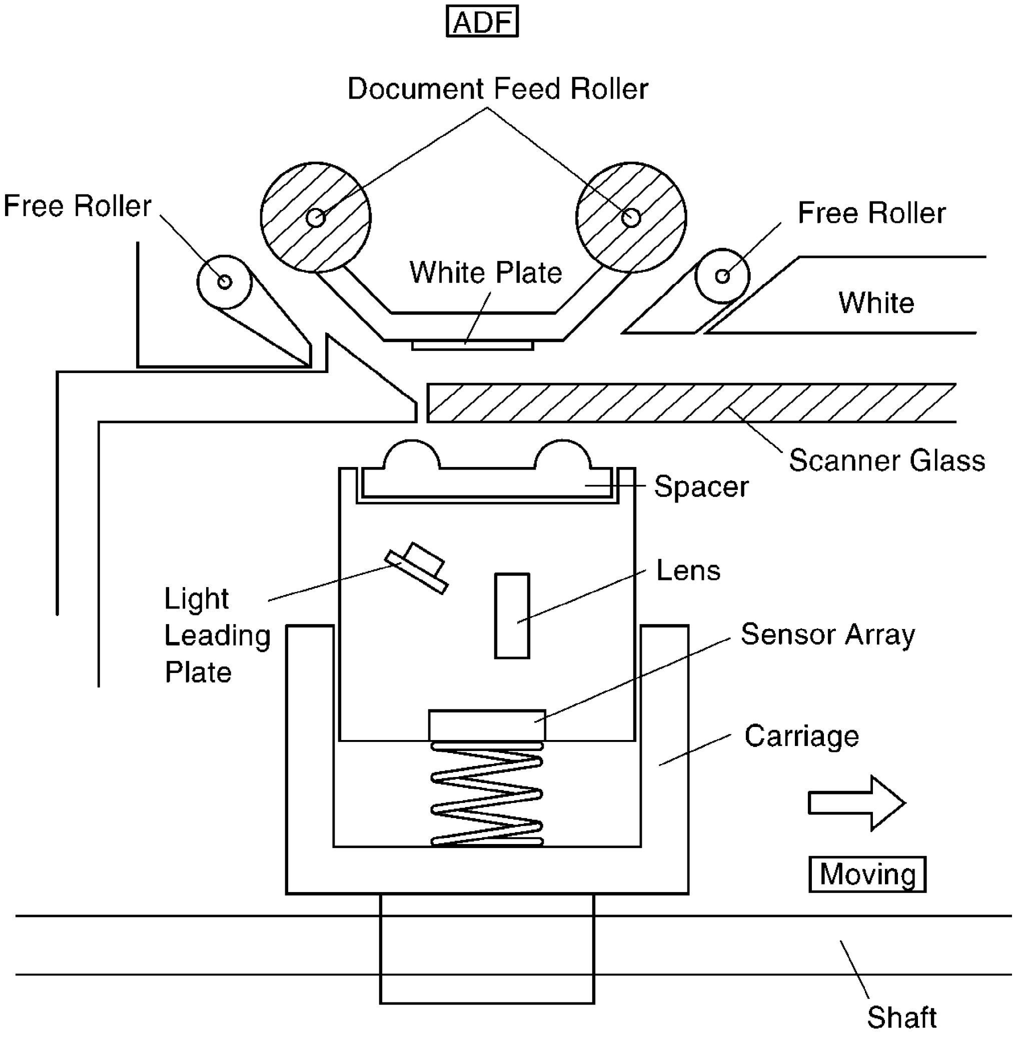
### 8.1.8.2. Copying with the Scanner Glass

**The motor, gear, belt, etc., cause CIS and the carriage above CIS to drive while copying with the scanner glass.The document should be set to the lower right standard point. Copy can be done without closing the document cover when the document is thick.When ADF document detection sensor detects the scanner glass, CIS moves to the right of the document from the home position.**
**When the printing part is ready for reading the document, the motor is driven again by the**

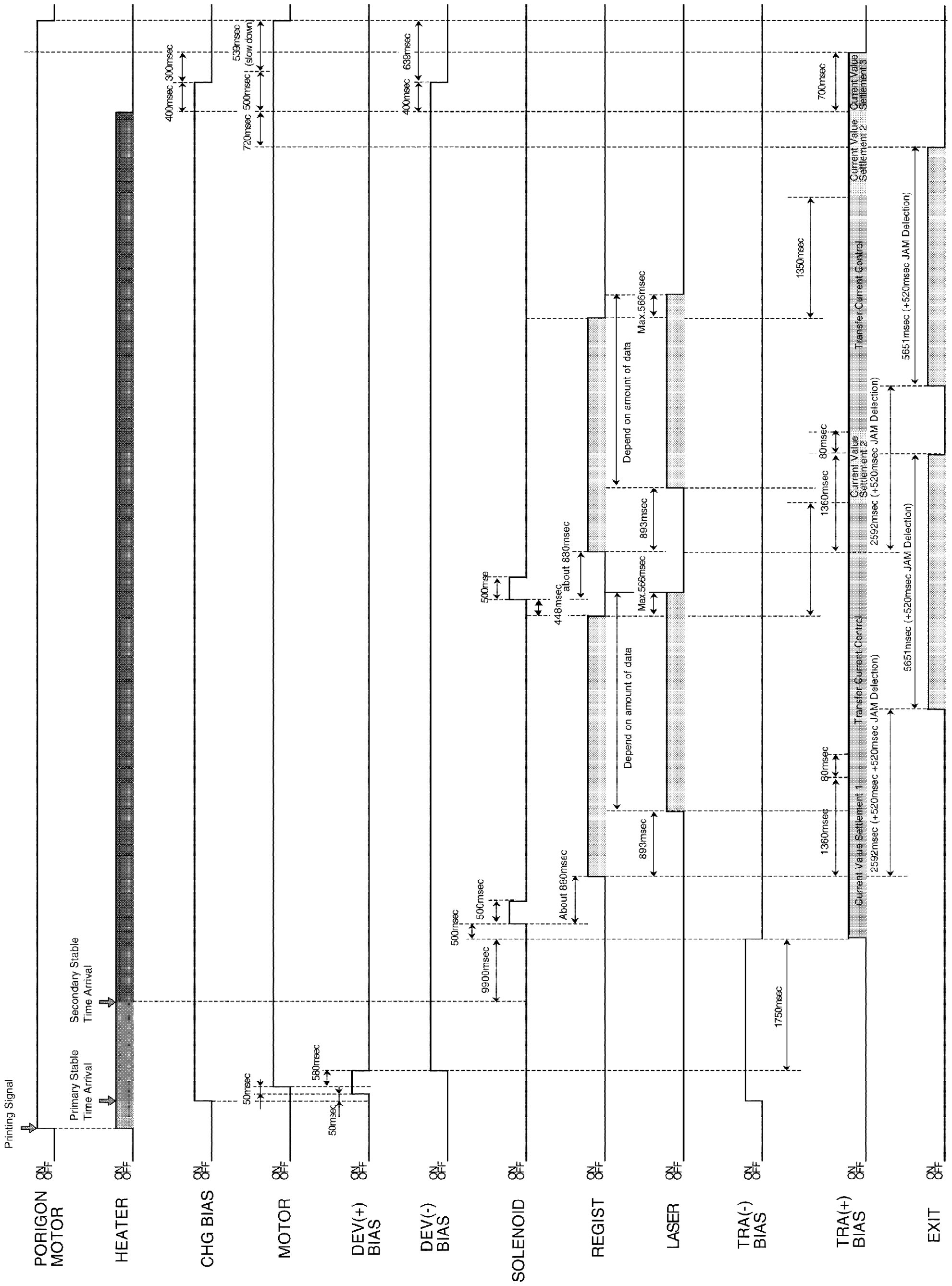
**operation of the user to move the roller**
**at a fixed speed. This operation is repeated from the next copy.**

### 8.1.8.3. CIS (Contact Image Scanner)

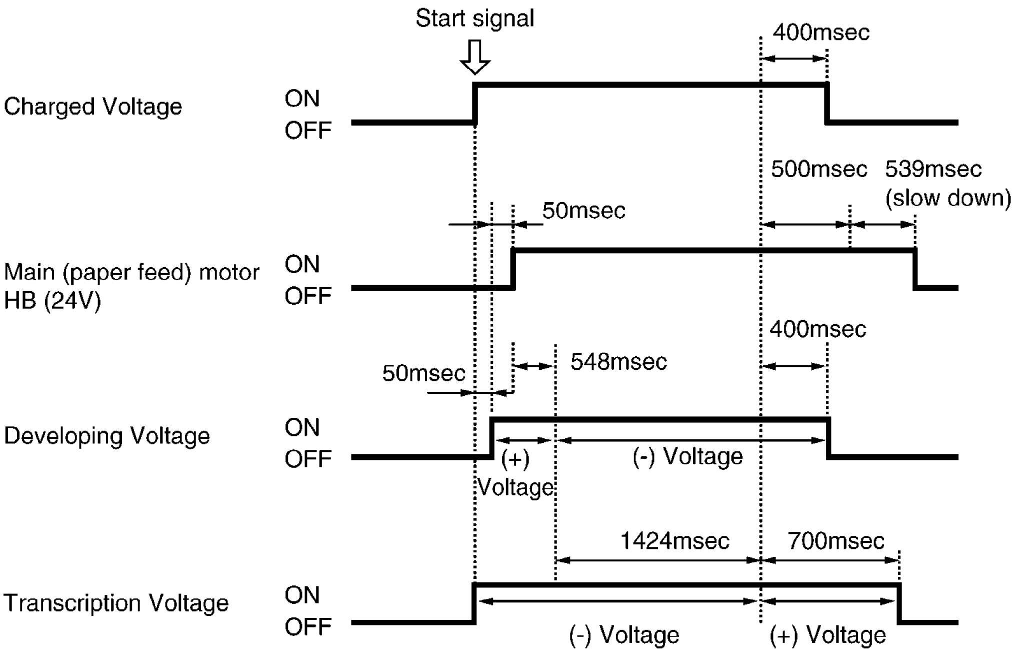
**CIS consists of LED, lens and sensor array. When the light emitted from LED is reflected on the document, the light reaches the**
**sensor through the lens, then the sensor array detects the document.**


ADF
Document Feed Roller
Free Roller
Free Roller
White Plate
White
Scanner Glass
Spacer
Lens
Light
Leading
Plate
Sensor Array
Carriage
Moving
Shaft

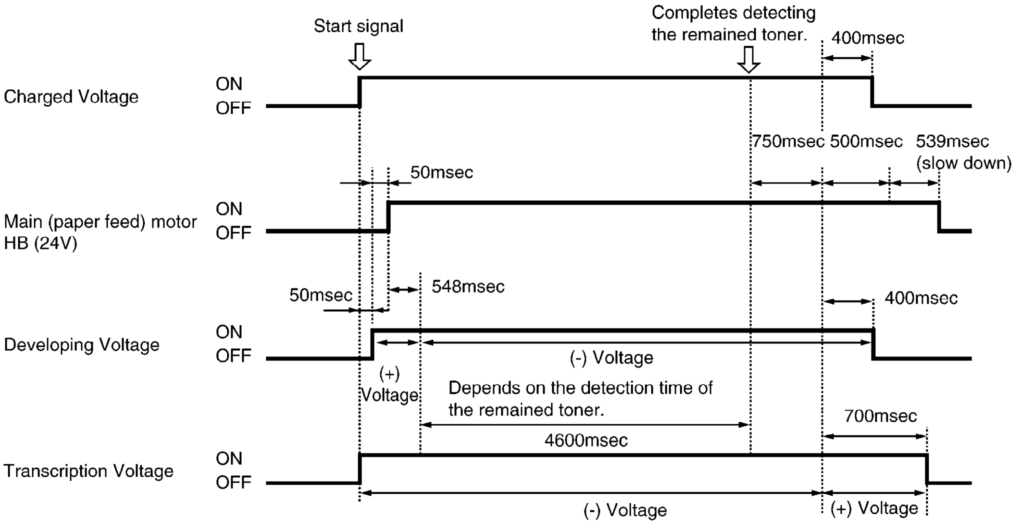
## 8.1.9. TIMING CHART (When Printing Two Sheets of Paper) BASIC


PORIGON MOTOR
HEATER
CHG BIAS
MOTOR
DEV(+) BIAS
DEV(-) BIAS
SOLENOID
REGIST
LASER
TRA(-) BIAS
TRA(+) BIAS
EXIT
ON
OFF
Printing Signal
Primary Stable Time Arrival
Secondary Stable Time Arrival
400msec
300msec
539msec (slow down)
500msec
720msec
639msec
50msec
580msec
9900msec
500msec
About 880msec
about 880msec
448msec
893msec
Max.566msec
Depend on amount of data
1750msec
1350msec
1360msec
80msec
700msec
Current Value Settlement 1
Current Value Settlement 2
Current Value Settlement 3
Transfer Current Control
2592msec (+520msec JAM Detection)
5651msec (+520msec JAM Detection)

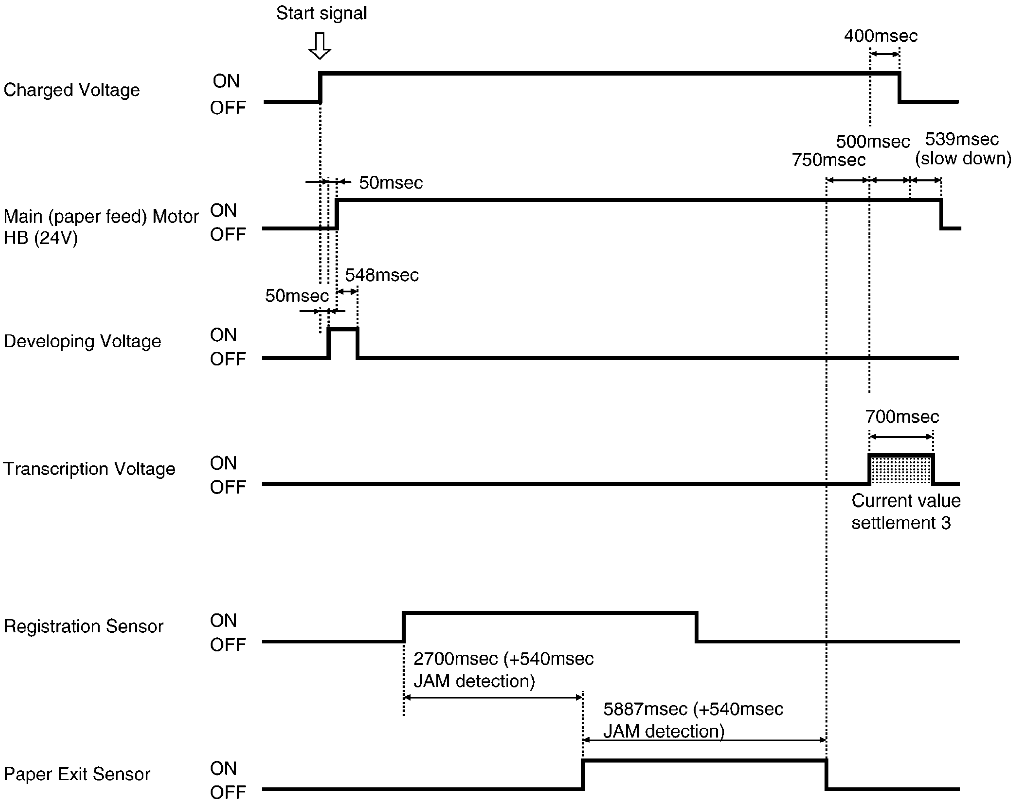
## 8.1.10. Timing Chart [Initializing (Short)]


Start signal
400msec
Charged Voltage
ON
OFF
500msec
539msec
(slow down)
50msec
Main (paper feed) motor
HB (24V)
ON
OFF
400msec
50msec
548msec
Developing Voltage
ON
OFF
(+)
Voltage
(-) Voltage
1424msec
700msec
Transcription Voltage
ON
OFF
(-) Voltage
(+) Voltage

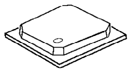
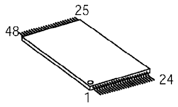
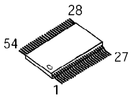
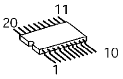
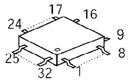
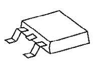
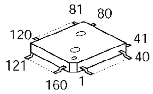
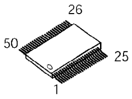
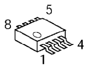
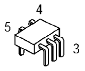
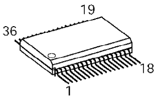
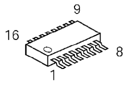
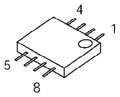
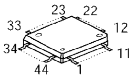
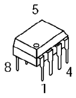
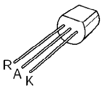
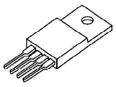
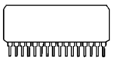
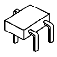
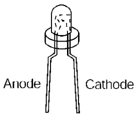
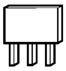
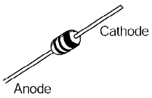
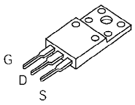
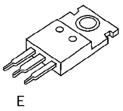
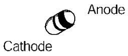
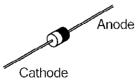
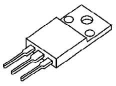
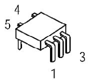
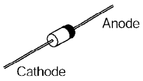
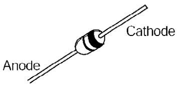
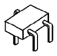
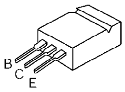
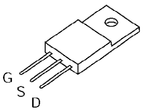
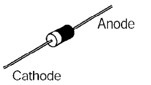
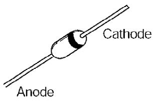
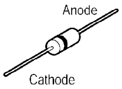
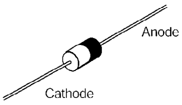
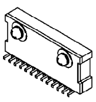
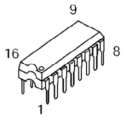
## 8.1.11. Timing Chart [Initializing (Long)]

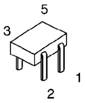
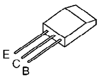
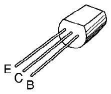
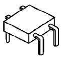
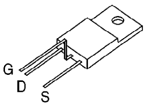

Start signal
Completes detecting
the remained toner.
400msec
Charged Voltage
ON
OFF
750msec
500msec
539msec
(slow down)
50msec
Main (paper feed) motor
HB (24V)
ON
OFF
50msec
548msec
400msec
Developing Voltage
ON
OFF
(+)
Voltage
(-) Voltage
Depends on the detection time of
the remained toner.
4600msec
700msec
Transcription Voltage
ON
OFF
(-) Voltage
(+) Voltage

## 8.1.12. Timing Chart (when the registration sensor is turned OFF then ON during initializing)


Start signal
400msec
Charged Voltage
ON
OFF
500msec
539msec
(slow down)
750msec
50msec
Main (paper feed) Motor
HB (24V)
ON
OFF
548msec
50msec
Developing Voltage
ON
OFF
700msec
Transcription Voltage
ON
OFF
Current value
settlement 3
Registration Sensor
ON
OFF
2700msec (+540msec
JAM detection)
5887msec (+540msec
JAM detection)
Paper Exit Sensor
ON
OFF

## 8.2. TERMINAL GUIDE OF THE ICs TRANSISTORS AND DIODES

| | | | | |
|---|---|---|---|---|
| <br>C1CB00001402 |  <br>PFWIFLB756AL |  <br>C3ABPG000080 |  <br>PFVITVT245FT |  17 16 24 9 8 25 32 1<br>C1CB00001365 |
| <br>PFVINSL1087D |  81 80 120 41 40 121 160 1<br>C1ZBZ0001924 |  <br>C3ABMG000039 |  <br>PQVINJM2903M |  <br>C0JBAD000093<br>C0JBAC000265 |
|  <br>AN6384SB |  <br>C1BB00000101 |  <br>PQVIMC34119D<br>PFVINJM4558M |  23 22 33 12 34 11 44 1<br>MN7D032Z9J |  <br>PFVIFA5317P |
|  <br>AN1431T | <br>PFVIPQ05RD11 | <br>MC41H13 | <br>2SB1197K<br>PQVTDTC143E<br>2SD1819A<br>PQVINJM4558 |  Anode Cathode<br>PFVLRM505VRT |
| <br>2SD1921Q |  Cathode Anode<br>MA4056 |  <br>2SK2662 |  <br>2SD1990P | <br>PQVDNNCD56DT |
|  Anode Cathode<br>PQVDRLS73T<br>PFVDRMRLS245 |  Anode Cathode<br>PFVDAG01A<br>PFVDD1NL20U<br>PFVDAU02Z | <br>2SK2662<br>PFVDSF5LC20U |  <br>PFVDNECD5R6G |  Anode Cathode<br>PFVDLT1505<br>PFVDRK36LFB2 |
|  Cathode Anode<br>1SS133<br>MA4220 | <br>MA141WK,MA143<br>B0ZBZ0000048<br>PQVTDTC123JU |  <br>2SD2137A |  <br>2SA1413 |  Anode Cathode<br>PQVDS5688G<br>PQVDDHM3M20 |
|  Cathode Anode<br>PQVDRD200EB<br>PQVDRD6.2ESB |  Anode Cathode<br>MA165 |  Anode Cathode<br>B0JAME000005 | <br>PFVIMT200303 |  <br>PFVIT2003APS |

| | | | | |
|---|---|---|---|---|
|  <br>AN6123MS |  <br>2SA1267 |  <br>2SC2235 | <br>PFVDDGS1ZB60 |  <br>2SK2717 |

## 8.3. HOW TO REPLACE THE FLAT PACKAGE IC

**Even if you do not have the special tools (for example, a spot heater) to remove the Flat IC, with some solder (large amount), a soldering iron and a cutter knife, you can easily remove the ICs that have more than 100 pins.**

### 8.3.1. PREPARATION

#### 8.3.1.1. For Power Supply Board

**- SOLDER**

**Sparkle Solder 115A-1, 115B-1 OR Almit Solder KR-19, KR-19RMA**

**- Soldering iron**

**Recommended power consumption is between 30 W to 40 W.**
**Temperature of Copper Rod 662 ± 50°F (350 ± 10°C)**
**(An expert may handle a 60~80 W iron, but a beginner might damage the foil by overheating.)**

**- Flux**

**HI115 Specific gravity 0.863**
**(Original flux should be replaced daily.)**

#### 8.3.1.2. For P.C.Board with “PbF” marking

**- PbF (: Pb free) Solder**

**- Soldering Iron**

**Tip Temperature of 700°F ± 20°F (370°C ± 10°C)**
**Note: We recommend a 30 to 40 Watt soldering iron. An expert may be able to use a 60 to 80 Watt iron where someone with less experience could overheat and damage the PCB foil.**

**- Flux**

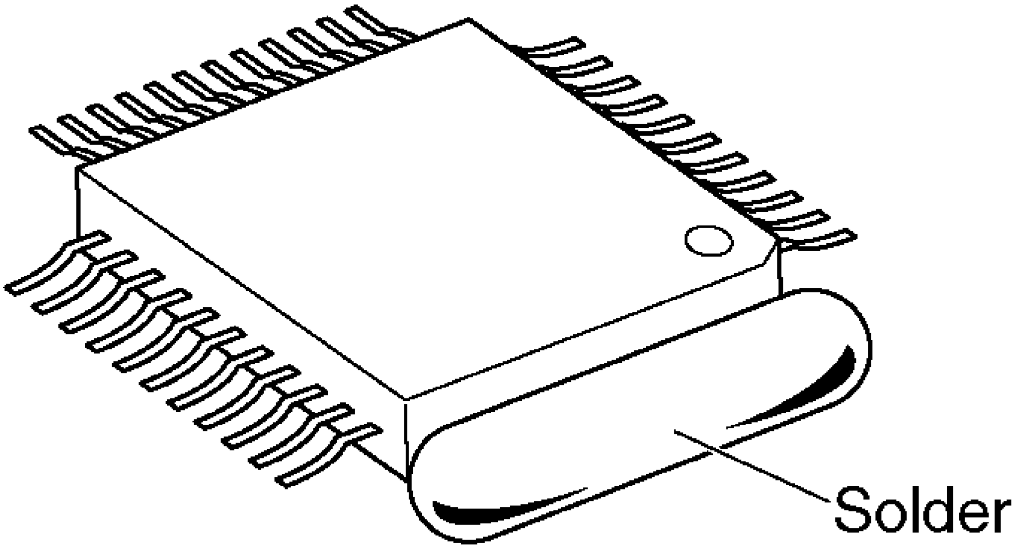
**Recommended Flux: Specific Gravity → 0.82.**
**Type → RMA (lower residue, non-cleaning type)**

**Note: See ABOUT LEAD FREE SOLDER (PbF: Pb free) ().**

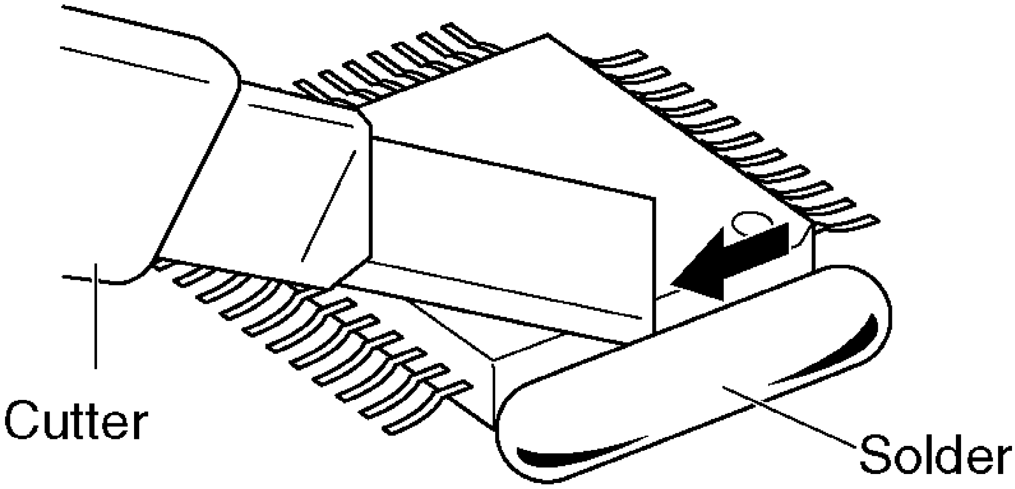
### 8.3.2. FLAT PACKAGE IC REMOVAL PROCEDURE

**1. Put plenty of solder on the IC pins so that the pins can be completely covered.**

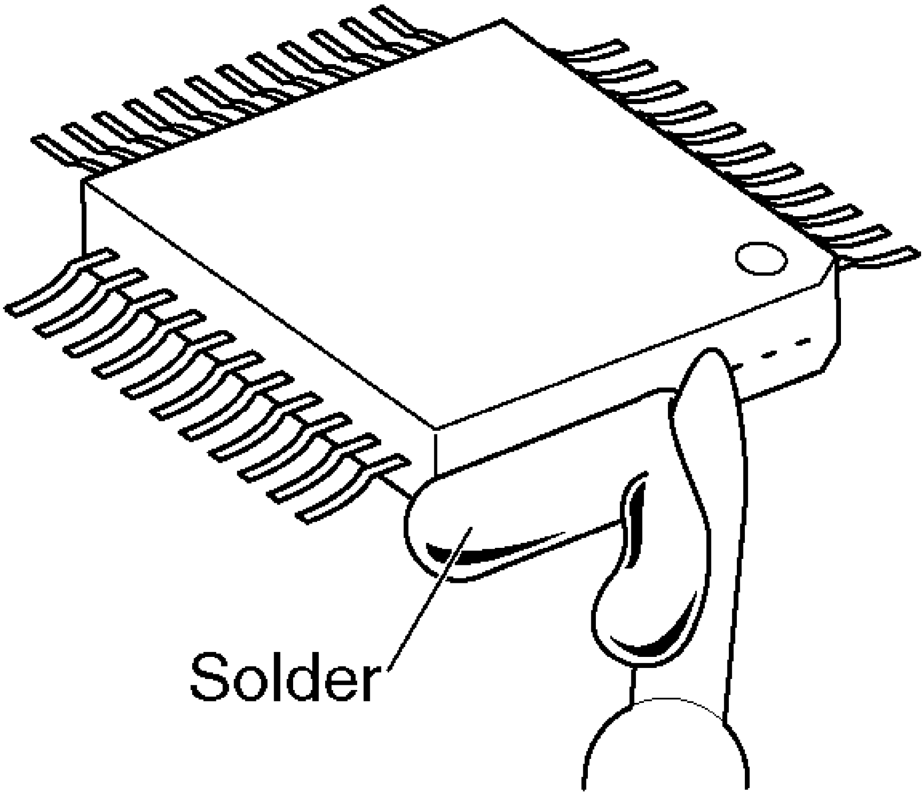
**Note:**
**If the IC pins are not soldered enough, you may give pressure to the P.C. board when cutting the pins with a cutter.**



2. Make a few cuts into the joint (between the IC and its pins) first and then cut off the pins thoroughly.


Cutter
Solder

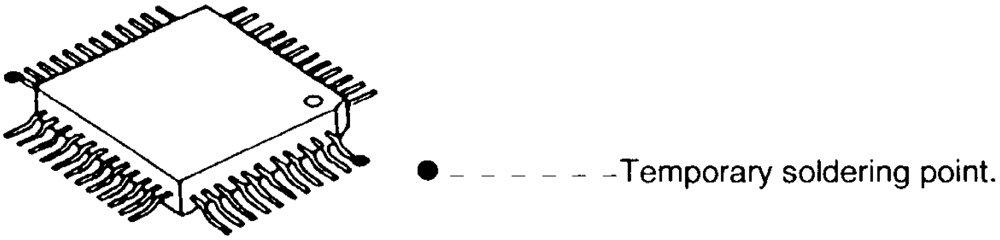
3. While the solder melts, remove it together with the IC pins.



**When you attach a new IC to the board, remove all solder left on the land with some tools like a soldering wire. If some solder is left at the joint on the board, the new IC will not be attached properly.**

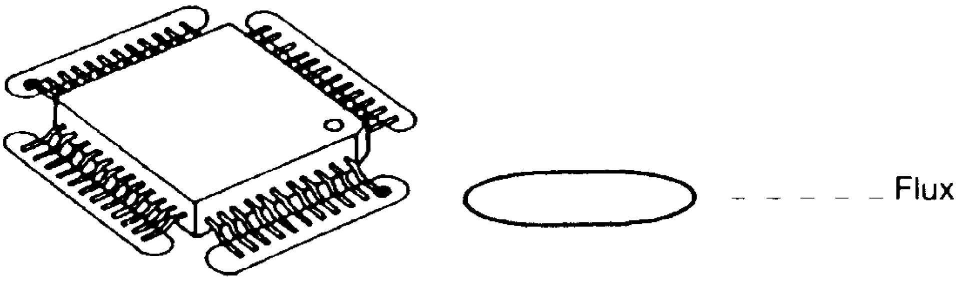
### 8.3.3. FLAT PACKAGE IC INSTALLATION PROCEDURE

## 1. Temporarily fix the FLAT PACKAGE IC, soldering the two marked pins.

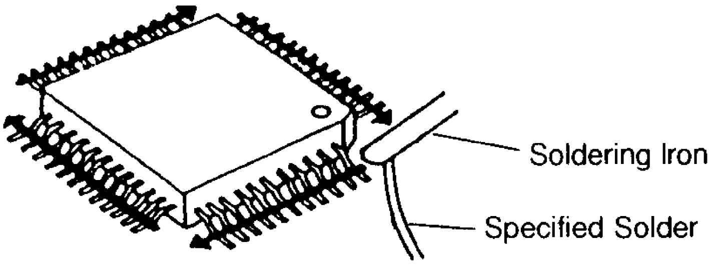


***Check the accuracy of the IC setting with the corresponding soldering foil.**

## 2. Apply flux to all pins of the FLAT PACKAGE IC.

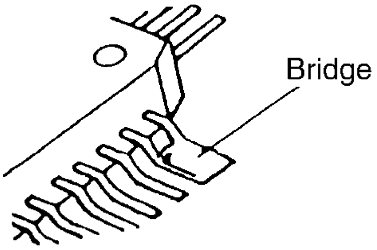


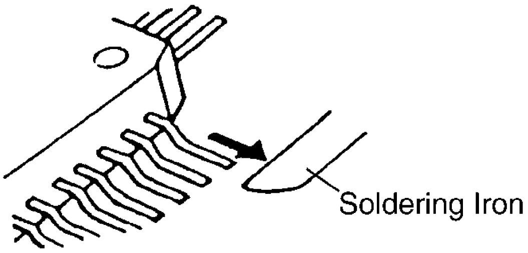
3. Solder the pins, sliding the soldering iron in the direction of the arrow.



### 8.3.4. BRIDGE MODIFICATION PROCEDURE

1. Lightly resolder the bridged portion.
2. Remove the remaining solder along the pins using a soldering iron as shown in the figure below.



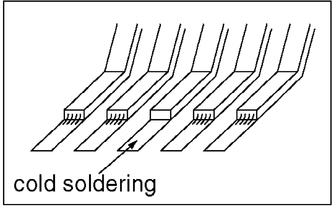


## 8.4. DIGITAL BOARD SECTION

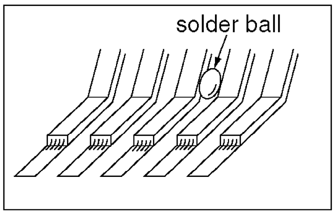
**When the unit fails to boot up the system, take the troubleshooting procedures very carefully. It may have a serious problem.**
**The symptom: No response when the power is turned on. (No LCD display, and keys are not accepted.)**
**The first step is to check the power source. If there is no problem with the power supply unit, the problem may lie in the digital unit (main board).**
**As there are many potential causes in this case (ASIC, DRAM, etc.), it may be difficult to specify what you should check first. If a mistake is made in the order of checks, a normal part may be determined faulty, wasting both time and money.**
**Although the tendency is to regard the problem as a serious one (IC malfunction, etc.), usually**

**most cases are caused by solder faults (poor contact due to a tunnel in the solder, signal short circuit due to solder waste).**

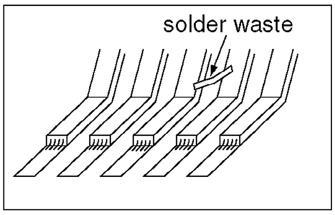
SMT(Surface Mount Type) PARTS



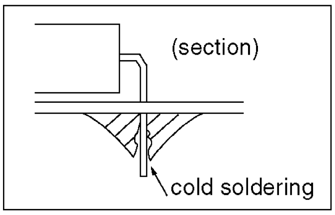
SMT PARTS



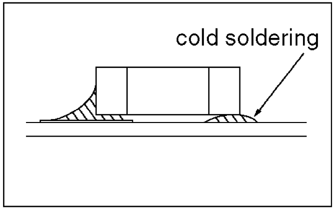
SMT PARTS



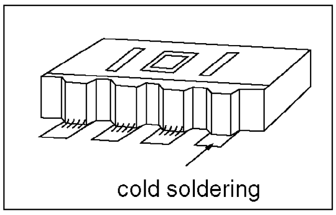
LEADED PARTS



CHIP PARTS (section)



RESISTOR ARRAY



**Note:**

1. **Electrical continuity may have existed at the factory check, but a faulty contact occurred as a result of vibration, etc., during transport.**
2. **Solder waste remaining on the board may get caught under the IC during transport, causing a short circuit.**

**Before we begin mass production, several hundred trial units are produced at the plant, various tests are applied and any malfunctions are analyzed. (In past experiences, digital IC (especially, DRAM and ROM) malfunctions are extremely rare after installation in the product.)**
**This may be repaired by replacing the IC, (DRAM etc.). However, the real cause may not have been an IC malfunction but a soldering fault instead.**
**Soldering faults difficult to detect with the naked eye are common, particularly for ASIC and RA (Resistor Array). But if you have an oscilloscope, you can easily determine the problem site or IC malfunction by checking the main signal lines.**
**Even if you don’t have such a measuring instrument, by checking each main signal line and resoldering it, in many cases the problem will be resolved.**
**An explanation of the main signals (for booting up the unit) is presented below.**

Don't replace ICs or stop repairing until checking the signal lines.
An IC malfunction rarely occurs. (By understanding the necessary signals for booting up the unit, the "Not Boot up" display is not a serious problem.)

**What are the main signals for booting up the unit?**
**Please refer to DIGITAL BLOCK DIAGRAM ().**
**The ASIC (IC604) controls all the other digital ICs. When the power is turned on, the ASIC**

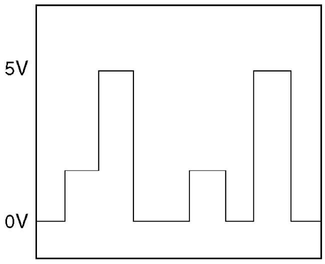
**retrieves the operation code stored in the ROM (IC606), then follows the instructions for controlling each IC. All ICs have some inner registers that are assigned to a certain address.**

**It is the address bus by which the ASIC designates the location inside each IC. And the data bus reads or writes the data in order to transmit the instructions from the ASIC to the ICs.**

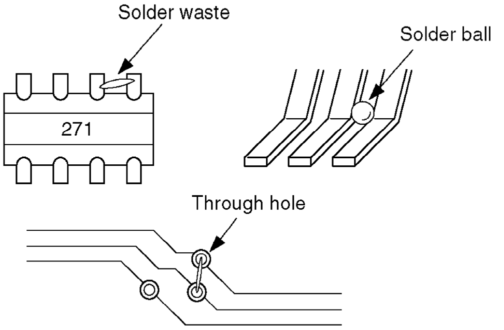
**These signal lines are all controlled by voltages of 3.3V (H) or 0V (L).**

## 8.4.1. NG EXAMPLE

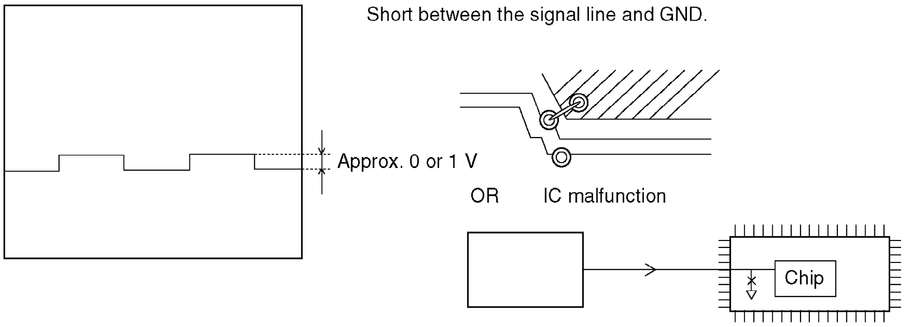
1.



Short circuit from the adjacent signal wires.
Check for a short circuit in the RA and IC leads and the signal wire at the through hole.

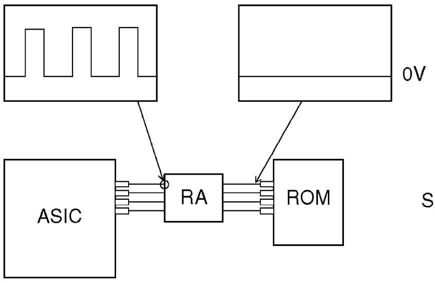

Solder waste
Solder ball
271
Through hole

2.


Approx. 0 or 1 V
OR
IC malfunction
Chip

Short between the signal line and GND.

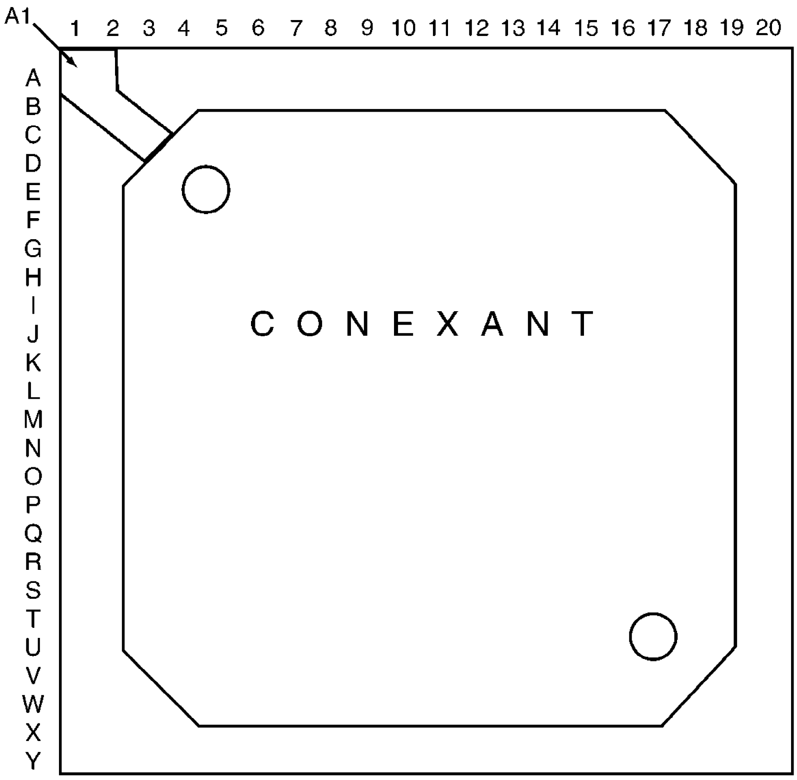
3.


0V
ASIC
RA
ROM

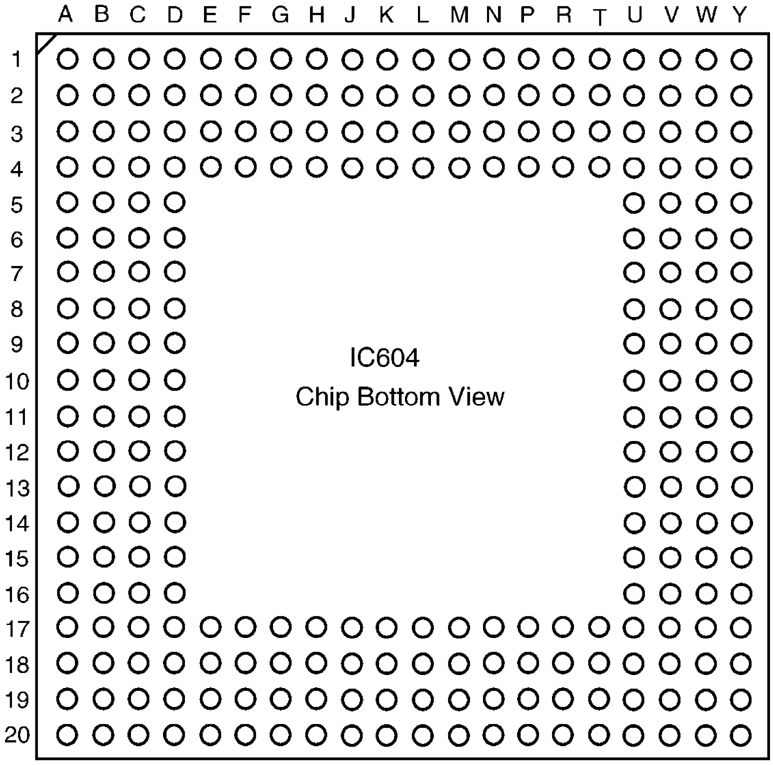
Solder fault on RA.

## 8.4.2. ASIC (IC604) PIN LAYOUT

**Top View**


A1
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
A B C D E F G H I J K L M N O P Q R S T U V W X Y
CONEXANT

**Bottom View**


A B C D E F G H J K L M N P R T U V W Y
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
IC604
Chip Bottom View

## 8.5. MODEM SECTION

### 8.5.1. FUNCTION

The unit uses CODEC (IC609) and ASIC (IC604) that serves as an interface between the control section for FAX transmission and reception and the telephone line. During a transmitting operation, the digital image signals are modulated and sent to the telephone line.
During a receiving operation, the analog image signals which are received via the telephone line are demodulated and converted into digital image signals. The communication format and procedures for FAX communication are standardized by ITU-T. CODEC and ASIC has hardware which sends and detects all of the necessary signals for FAX communication.
It can be controlled by writing commands from the CPU (IC604: inside ASIC).
This CODEC and ASIC also sends DTMF signals, generates a call tone (from the speaker), and detects a busy tone and dial tones.
Overview of Facsimile Communication Procedures (ITU-T Recommendation):

## 1. ON CCITT (International Telegraph and Telephone Consultative Committee)

The No. XIV Group of ITU-T, one of the four permanent organizations of the International Telecommunications Union (ITU), investigates and make recommendations on international standards for facsimiles.

## 2. Definition of Each Group

- Group I (G1)

  Official A-4 size documents without using formats which reduce the band width of a signal are sent over telephone lines. Determined in 1968.
  Transmission for about 6 minutes at a scanning line density of 3.85 lines/mm.
- Group II (G2)

  Using reduction technology in the modulation/demodulation format, an A-4 size document is sent at an official scanning line density of 3.85 lines/mm for about 3 minutes.
  Methods to suppress redundancy are not used.
  Determined in 1976.
- Group III (G3)

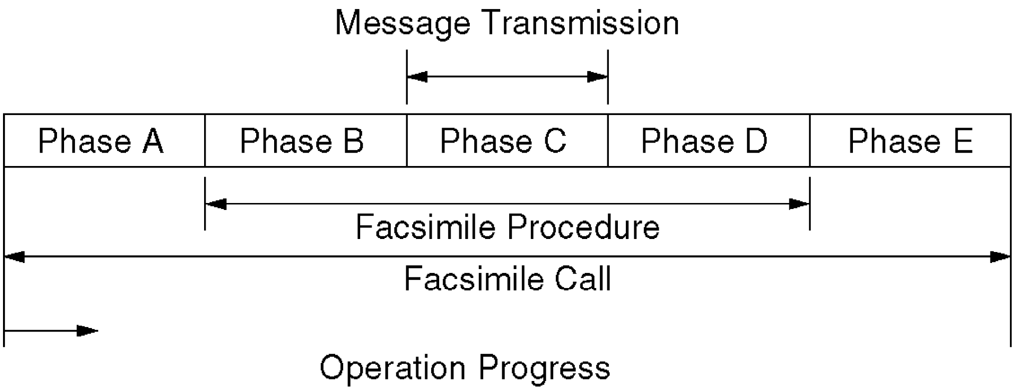
  Method of suppressing redundancy in the image signal prior to modulation is used. An A-4 size document is sent within about one minute.
  Determined in 1980.
- Group IV (G4)

  Transmission is via the data network. A method is provided for suppressing redundancy in signals prior to transmission, and error-free reception of transmission is possible.

The scope of these facsimile applications is not limited simply to transmission of written statements. Through symbiotic linkages with other communication methods, it can be expected to expand to include integrated services.

## 3. Facsimile Call Time Series

As shown in the following diagram, the facsimile call time series is divided into five phases.



Phase A : Call setting

Call setting can be manual/automatic.

Phase B : Pre-message procedure

Phase B is a pre-processing procedure and sequence for confirming the status of the terminal, transmission route, etc., and for terminal control. It implements terminal preparation status, determines and displays terminal constants, confirms synchronization status, etc. and prepares for transmission of facsimile messages.

Phase C : Message transmission

Phase C is the procedure for the transmitting facsimile messages.

Phase D : Post message procedure

Phase D is the procedure for confirming that the message is completed and received. For continuous transmission, phase B or phase C is repeated for transmission.

Phase E : Call retrieval

Phase E is the procedure for call retrieval, that is for circuit disconnection.

## 4. Concerning Transmission Time

**[Transmission Time] = [Control Time] + [ Image Transmission Time] + [Hold Time]**
**Transmission time consists of the following.**

**Control time:**
**This is time at the start of transmission when the functions at the sending and receiving sides are confirmed, the transmission mode is established, and transmission and reception are synchronized.**

**Image transmission time:**
**This is the time required for the transmission of document contents (image data). In general, this time is recorded in the catalog, etc.**

**Hold time:**
**This is the time required after the document contents have been sent to confirm that the document was actually sent, and to check for telephone reservations and/or the existence of continuous transmission.**

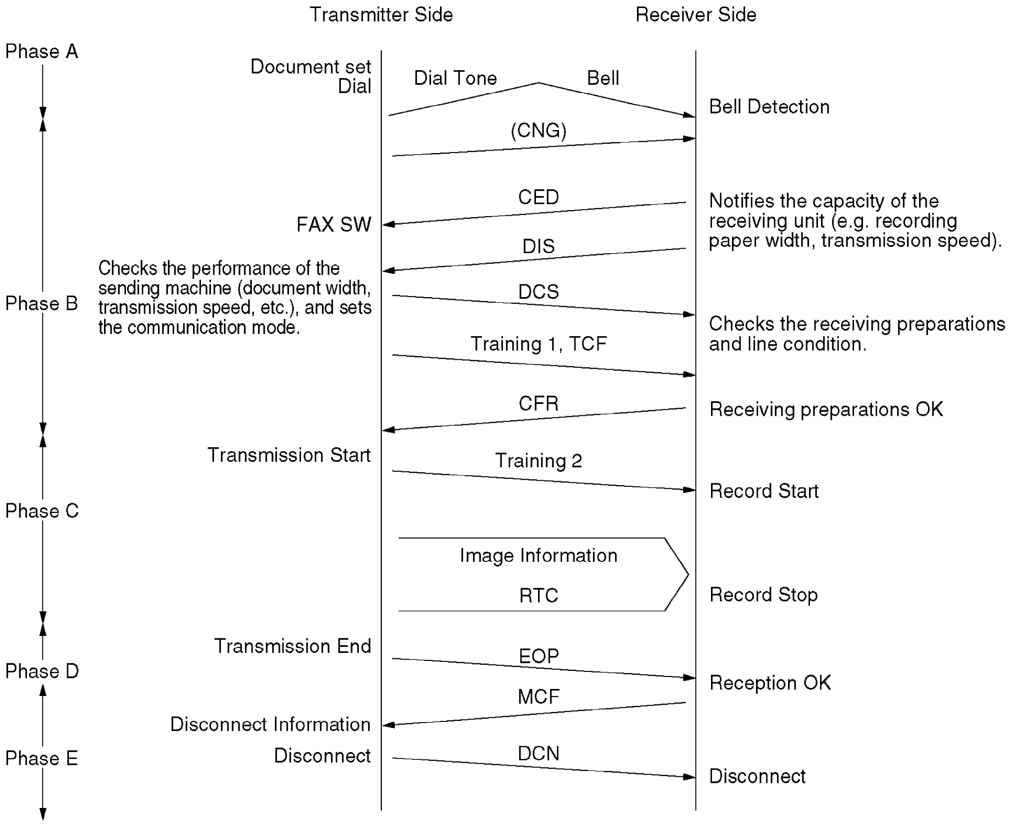
## 5. Facsimile Standards

| Item | Telephone Network Facsimile |
|---|---|
| | G3 Machine |
| Connection Control Mode | Telephone Network Signal Mode |
| Terminal Control Mode | T. 30 Binary |
| Facsimile Signal Format | Digital |
| Modulation Mode | PSK (V. 27 ter) or QAM (V. 29) |
| Transmission Speed | 300 bps (Control Signal)<br>2400, 4800, 7200, 9600, 12000, 14400 bps (FAX Signal) |
| Redundancy Compression Process (Coding Mode) | 1 dimension: MH Mode<br>2 dimension: MR Mode (K=2.4) |
| Resolution | Main Scan: 8 pel/mm<br>Sub Scan: 3.85, 7.7l/mm |
| Line Synchronization Signal | EOL Signal |
| 1 Line Transmission Time [ms/line] | Depends on the degree of data reduction.<br>Minimum Value: 10, 20<br>Can be recognized in 40ms. |

## 6. Explanation of Communication and Compression Technology

### A. G3 Communication Signals (T. 30 Binary Process)

**For G3 Facsimile communication, this is the procedure for exchanging control signals between the sending and receiving machines both before and after transmission of image signals. Control signals at 300 bps FSK are: 1850 Hz...0, 1650Hz...1. An example of a binary process in G3 communication is shown below.**


Transmitter Side
Receiver Side
Phase A
Document set
Dial
Dial Tone
Bell
Bell Detection
(CNG)
CED
FAX SW
Notifies the capacity of the receiving unit (e.g. recording paper width, transmission speed).
DIS
Checks the performance of the sending machine (document width, transmission speed, etc.), and sets the communication mode.
Phase B
DCS
Training 1, TCF
Checks the receiving preparations and line condition.
CFR
Receiving preparations OK
Transmission Start
Training 2
Record Start
Phase C
Image Information
RTC
Record Stop
Transmission End
EOP
Phase D
Reception OK
MCF
Disconnect Information
Disconnect
DCN
Phase E
Disconnect

**Explanation of Signals**

**Control signals are comprised mainly of 8-bit identification signals and the data signals added to them. Data signals are added to DIS and DCS signals.**

**Signal.....DIS (Digital Identification Signal)**

**Identification Signal Format.....00000001**

**Function:**

**Notifies the capacity of the receiving unit. The added data signals are as follows.**

**Signal.....DCS (Digital Command Signal)**

**Identification Signal Format.....X1000001**

**Example**

**(Some models do not support the following items.):**

| Bit No. | DIS/DTC | DCS |
|---|---|---|
| 1 | Transmitter --- T.2 operation | |
| 2 | Receiver --- T.2 operation | Receiver --- T.2 operation |
| 3 | T.2 IOC = 176 | T.2 IOC = 176 |
| 4 | Transmitter --- T.3 operation | |
| 5 | Receiver --- T.3 operation | Receiver --- T.3 operation |
| 6 | Reserved for future T.3 operation features | |
| 7 | Reserved for future T.3 operation features. | |
| 8 | Reserved for future T.3 operation features. | |
| 9 | Transmitter --- T.4 operation | |
| 10 | Receiver --- T.4 operation | Receiver --- T.4 operation |
| 11, 12, 13, 14 | Data signaling rate | Data signaling rate |
| 0, 0, 0, 0 | V.27 ter fall back mode | 2400 bit/s, V.27 ter |
| 0, 1, 0, 0 | V.27 ter | 4800 bit/s, V.27 ter |
| 1, 0, 0, 0 | V.29 | 9600 bit/s, V.29 |
| 1, 1, 0, 0 | V.27 ter and V.29 | 7200 bit/s, V.29 |
| 0, 0, 1, 0 | Not used | 14400 bit/s, V.33 |
| 0, 1, 1, 0 | Reserved | 12000 bit/s, V.33 |
| 1, 0, 1, 0 | Not used | Reserved |
| 1, 1, 1, 0 | V.27 ter and V.29 and V.33 | Reserved |
| 0, 0, 0, 1 | Not used | 14400 bit/s, V.17 |
| 0, 1, 0, 1 | Reserved | 12000 bit/s, V.17 |
| 1, 0, 0, 1 | Not used | 9600 bit/s, V.17 |
| 1, 1, 0, 1 | V.27 ter and V.29 and V.33 and V.17 | 7200 bit/s, V.17 |
| 0, 0, 1, 1 | Not used | Reserved |
| 0, 1, 1, 1 | Reserved | Reserved |
| 1, 0, 1, 1 | Not used | Reserved |
| 1, 1, 1, 1 | Reserved | Reserved |
| 15 | R8×7.7 lines/mm and/or 200×200 pels/ 25.4mm | R8×7.7 lines/mm and/or 200×200 p 25.4mm |
| 16 | Two-dimensional coding capability | Two-dimensional coding capabilit |

| Bit No. | DIS/DTC | DCS |
|---|---|---|
| 17, 18<br>(0, 0)<br>(0, 1)<br>(1, 0)<br>(1, 1) | Recording width capabilities<br>1728 picture elements along scan line length of 215 mm ± 1%<br>1728 picture elements along scan line length of 215 mm ± 1%<br>2048 picture elements along scan line length of 255 mm ± 1%<br>2432 picture elements along scan line length of 303 mm ± 1%<br>1728 picture elements along scan line length of 215 mm ± 1%<br>2048 picture elements along scan line length of 255 mm ± 1%<br>Invalid | Recording width<br>1728 picture elements along scan length of 215 mm ± 1%<br>2432 picture elements along scan length of 303 mm ± 1%<br>2048 picture elements along scan length of 255 mm ± 1%<br>Invalid |
| 19, 20<br>(0, 0)<br>(0, 1)<br>(1, 0)<br>(1, 1) | Maximum recording length capability<br>A4 (297 mm)<br>Unlimited<br>A4 (297 mm) and B4 (364 mm)<br>Invalid | Maximum recording length<br>A4 (297 mm)<br>Unlimited<br>B4 (364 mm)<br>Invalid |
| 21, 22, 23<br>(0, 0, 0)<br>(0, 0, 1)<br>(0, 1, 0)<br>(1, 0, 0)<br>(0, 1, 1)<br>(1, 1, 0)<br>(1, 0, 1)<br>(1, 1, 1) | Minimum scan line time capability of the receiver<br>20 ms at 3.85 l/mm: $T_{7.7} = T_{3.85}$<br>40 ms at 3.85 l/mm: $T_{7.7} = T_{3.85}$<br>10 ms at 3.85 l/mm: $T_{7.7} = T_{3.85}$<br>5 ms at 3.85 l/mm: $T_{7.7} = T_{3.85}$<br>10 ms at 3.85 l/mm: $T_{7.7} = 1/2\ T_{3.85}$<br>20 ms at 3.85 l/mm: $T_{7.7} = 1/2\ T_{3.85}$<br>40 ms at 3.85 l/mm: $T_{7.7} = 1/2\ T_{3.85}$<br>0 ms at 3.85 l/mm: $T_{7.7} = T_{3.85}$ | Minimum scan line time<br>20 ms<br>40 ms<br>10 ms<br>5 ms<br>0 ms |
| 24 | Extend field | Extend field |
| 25 | 2400 bit/s handshaking | 2400 bit/s handshaking |
| 26 | Uncompressed mode | Uncompressed mode |
| 27 | Error correction mode | Error correction mode |
| 28 | Set to “0”. | Frame size 0 = 256 octets 1 = 64 o |
| 29 | Error limiting mode | Error limiting mode |
| 30 | Reserved for G4 capability on PSTN | Reserved for G4 capability on PST |
| 31 | T.6 coding capability | T.6 coding enabled |
| 32 | Extend field | Extend field |

| Bit No. | DIS/DTC | DCS |
|---|---|---|
| 33<br>(0)<br>(1) | Validity of bits 17, 18<br>Bits 17, 18 are valid<br>Bits 17, 18 are invalid | Recording width<br>Recording width indicated by bits<br>Recording width indicated by this information |
| 34 | Recording width capability 1216 picture elements along scan line length of 151 ± mm 1% | Middle 1216 elements of 1728 pict elements |
| 35 | Recording width capability 864 picture elements along scan line length of 107 ± mm 1% | Middle 864 elements of 1728 pictu elements |
| 36 | Recording width capability 1728 picture elements along scan line length of 151 ± mm 1% | Invalid |
| 37 | Recording width capability 1728 picture elements along scan line length of 107 ± mm 1% | Invalid |
| 38 | Reserved for future recording width capability. | |
| 39 | Reserved for future recording width capability. | |
| 40 | Extend field | Extend field |
| 41 | R8×15.4 lines/mm | R8×15.4 lines/mm |
| 42 | 300×300 pels/25.4 mm | 300×300 pels/25.4 mm |
| 43 | R16×15.4 lines/mm and/or 400×400 pels/ 25.4 mm | R16×15.4 lines/mm and/or 400×40 25.4 mm |
| 44 | Inch based resolution preferred | Resolution type selection<br>“0”: neuritic based resolution<br>“1”: inch based resolution |
| 45 | Metric based resolution preferred | Don’t care |
| 46 | Minimum scan line time capability for higher resolutions<br>“0”: $T_{15.4} = T_{7.7}$ “1”: $T_{15.4} = 1/2T_{7.7}$ | Don’t care |
| 47 | Selective Polling capability | Set to “0”. |
| 48 | Extend field | Extend field |

Note 1 - Standard facsimile units conforming to T.2 must have the following capability: Index of cooperation (IOC)=264.

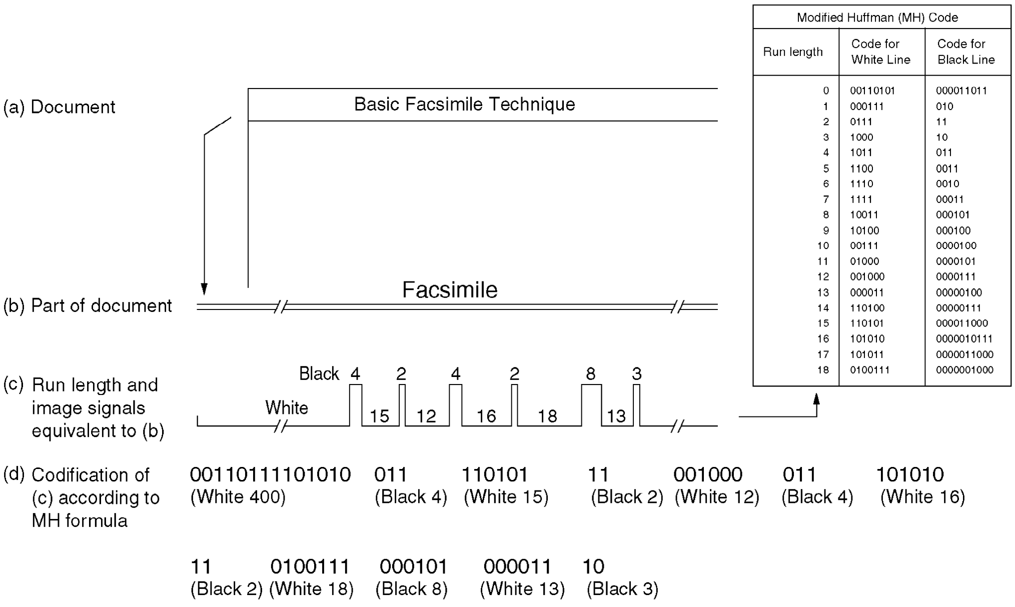
Note 2 - Standard facsimile units conforming to T.3 must have the following capability: Index of cooperation (IOC)=264.

Note 3 - Standard facsimile units conforming to T.4 must have the following capability: Paper length=297 mm.

| Signal | Identification Signal Format | Function |
|---|---|---|
| **Training 1** | — | **A fixed pattern is transmitted to the receivin at a speed (2400 to 14400 bps) designated b DCS, and the receiving side optimizes the automatic equalizer, etc., according to this si** |
| **TCF<br>(Training Check)** | — | **Sends 0 continuously for 1.5 seconds at the speed as the training signal.** |
| **CFR<br>(Confirmation to Receive)** | **X0100001** | **Notifies the sending side that TCF has been properly received. If TCF is not properly rece FTT (Failure To Train) X0100010 is relayed to sender. The sender then reduces the transmission speed by one stage and initiate training once again.** |
| **Training 2** | — | **Used for reconfirming the receiving side like training 1.** |
| **Image Signal** | **Refer to the next page.** | — |
| **RTC<br>(Return to Control)** | — | **Sends 12 bits (0...01 × 6 times) to the receive the same speed as the image signal and noti completion of transmission of the first sheet** |
| **EOP<br>(End of Procedure)** | **X1110100** | **End of one communication** |
| **MCF<br>(Message Confirmation)** | **X0110001** | **End of 1 page reception** |
| **DCN<br>(Disconnect)** | **X1011111** | **Phase E starts.** |
| **MPS<br>(Multi-Page Signal)** | **X1110010** | **Completion of transmission of 1 page. If ther still more documents to be sent, they are out instead of EOP. After MCF reception, the sen transmits an image signal of the second she** |
| **PRI-EOP<br>(Procedural Interrupt-EOP)** | **X1111100** | **If there is an operator call from the sender, it output after RTC.** |
| **PIP<br>(Procedural Interrupt Positive)** | **X0110101** | **This is output when an operator call is receiv** |

## B. Redundancy Compression Process Coding Mode

**This unit uses one-dimensional MH format.**


(a) Document
Basic Facsimile Technique
(b) Part of document
Facsimile
(c) Run length and image signals equivalent to (b)
Black 4 2 4 2 8 3
White
15 12 16 18 13
(d) Codification of (c) according to MH formula
00110111101010 (White 400)
011 (Black 4)
110101 (White 15)
11 (Black 2)
001000 (White 12)
011 (Black 4)
101010 (White 16)
11 (Black 2)
0100111 (White 18)
000101 (Black 8)
000011 (White 13)
10 (Black 3)

| Modified Huffman (MH) Code | | |
|---|---|---|
| Run length | Code for White Line | Code for Black Line |
| 0 | 00110101 | 000011011 |
| 1 | 000111 | 010 |
| 2 | 0111 | 11 |
| 3 | 1000 | 10 |
| 4 | 1011 | 011 |
| 5 | 1100 | 0011 |
| 6 | 1110 | 0010 |
| 7 | 1111 | 00011 |
| 8 | 10011 | 000101 |
| 9 | 10100 | 000100 |
| 10 | 00111 | 0000100 |
| 11 | 01000 | 0000101 |
| 12 | 001000 | 0000111 |
| 13 | 000011 | 00000100 |
| 14 | 110100 | 00000111 |
| 15 | 110101 | 000011000 |
| 16 | 101010 | 0000010111 |
| 17 | 101011 | 0000011000 |
| 18 | 0100111 | 0000001000 |

(c) Total bit number before MH codification (497 bit)
(d) Total bit number after MH codification (63 bit)

## 8.6. NCU SECTION

### 8.6.1. GENERAL

**This section is the interface between the telephone line and external telephone. It is composed of an EXT. TEL line relay (RY202), bell detection circuit, TAM interface circuit, line amplifier and side tone circuits and a multiplexer.**

### 8.6.2. EXT. TEL. LINE RELAY (RY202)

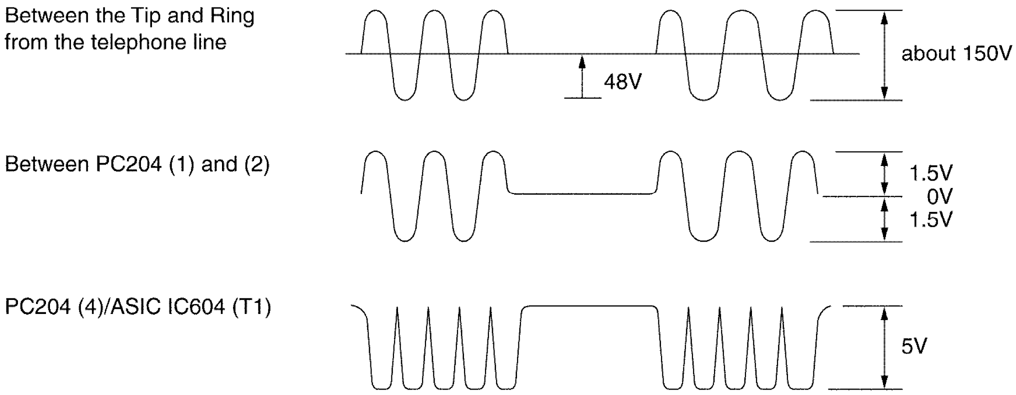
### 1. Circuit Operation

**Normally, this relay switches to the external telephone side (break) and switches to the open side (make) while OFF-HOOK.**
**{ IC610 (149) High Level → CN616 (18) High Level} → CN202 (11) High Level → Q210 ON → RY202 ON → (make)**
**{ IC610 (145) Low Level → CN616 (22) Low Level} → CN202 (7) Low Level → PC203 ON → Q211 ON → (make)**

### 8.6.3. BELL DETECTION CIRCUIT

### 1. Circuit Operation

**The signal waveform for each point is indicated below. The signal (low level section) input to pin T1 of ASIC IC604 on the digital board is read by ASIC and judged as a bell.**
**TEL LINE → PC204 (1, 2 - 4) → IC604 (T1)**


Between the Tip and Ring
from the telephone line
48V
about 150V
Between PC204 (1) and (2)
1.5V
0V
1.5V
PC204 (4)/ASIC IC604 (T1)
5V

### 8.6.4. CALLING LINE IDENTIFICATION CIRCUIT

**1. Function**

**This unit is compatible with the Caller ID service offered by your local telephone company. To use this feature, you must subscribe to a Caller ID service. The data for the caller ID from the telephone exchange is sent during the interval between the first and second rings of the bell signal. The data from the telephone exchange is a modem signal which is modulated in an FSK (Frequency Shift Keying) format. Data "0" is a 1200 Hz sine wave, and data 1 a 2200 Hz sine wave.**

**There are two type of the message format which can be received: i.e.the single data message format and multiple data message format.**

**The multiple data format allows to transmit the name and data code information in addition to the time and telephone number data.**

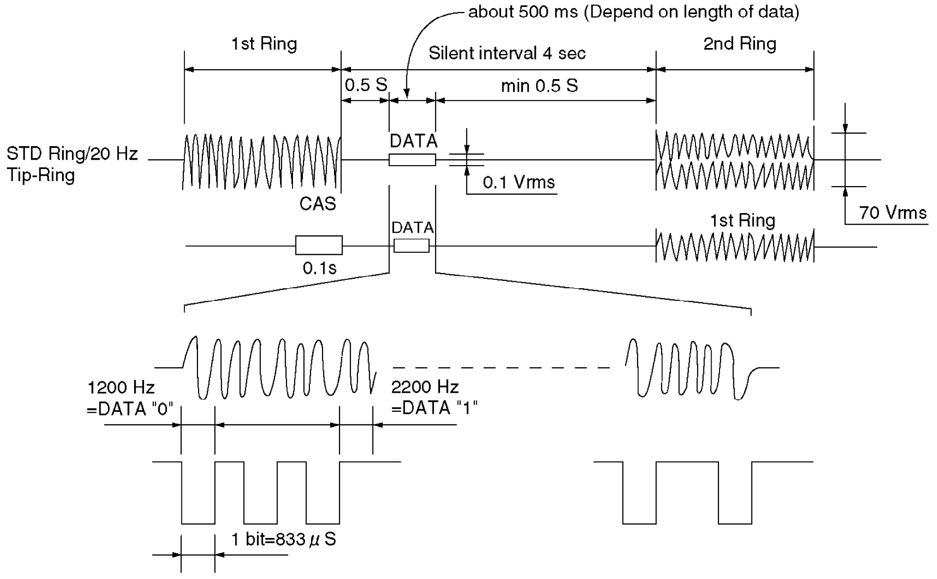
**When there is multiple data in the unit, the name or telephone number are displayed.**

**2. Circuit Operation**

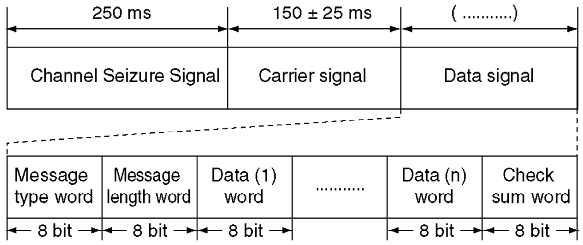
**The caller ID signal input from TEL LINE is processed with ASIC (IC604) via CODEC (IC609).**

**Refer to CHECK SHEET () for the route of caller ID signal.**

**Timing Chart**

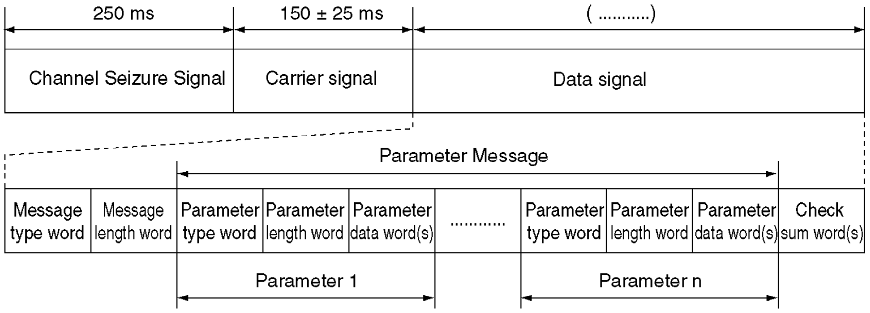

about 500 ms (Depend on length of data)
1st Ring
Silent interval 4 sec
2nd Ring
0.5 S
min 0.5 S
STD Ring/20 Hz
Tip-Ring
DATA
0.1 Vrms
CAS
DATA
1st Ring
70 Vrms
0.1s
1200 Hz
=DATA "0"
2200 Hz
=DATA "1"
1 bit=833 μ S

**• Single data message**


250 ms
150 ± 25 ms
( ...........)
Channel Seizure Signal
Carrier signal
Data signal
Message type word
Message length word
Data (1) word
...........
Data (n) word
Check sum word
8 bit
8 bit
8 bit
8 bit
8 bit

- •1 word = All 8 bit data
- •Message Type Word = Fixed value "00000100"
- •Message Length Word = number of the data word
- •Data word = The data value (month, day, hour, minute, telephone number)

**· Multiple data message**


250 ms
150 ± 25 ms
( ...........)
Channel Seizure Signal
Carrier signal
Data signal
Parameter Message
Message type word
Message length word
Parameter type word
Parameter length word
Parameter data word(s)
............
Parameter type word
Parameter length word
Parameter data word(s)
Check sum word(s)
Parameter 1
Parameter n

·1 word = All 8 bit data
·Message Type = Fixed value "10000000"
·Message Length Word = number of the Parameter Message word
·Parameter Type Word = Kind of data (ex. the time, phone number)
·Parameter Length Word = number of the Parameter data word
·Parameter Word (s) = the data value

## 8.6.5. LINE AMPLIFIER AND SIDE TONE CIRCUIT

## 1. Circuit Operation

**The reception signal output from the line transformer T201 is input to pin (6) of IC207 via R269, C285 and then the signal is amplified at pin (7) of IC207 and sent to the reception system at 1.7dB.**
**The transmission signal goes through C243, R276 and enters IC207-pin (2), where the signal is amplified to about 27.2dB. Then, it is output from pin (1) of IC207 and transmitted to T201 via C312, R293 and R292. Without a side tone circuit, the transmission signal will return to the reception amplifier via R269, C285. When the side tone circuit is active, the signal output from IC207 pin (1) passes through C312, R291, C306, R284, R280, C300, R267 and C288 and goes into the amplifier IC207 pin (5). This circuit is used to cancel the transmission return signal.**
**The TX signal is output to the circuit analog the route from the IC207 1 pin → C312 → R293 → R292 → T201 → TEL LINE.**
**However, if balance is lost in the bridge, a voltage occurs between the IC207 6 pin and 5 pin and a side tone results, because the balance cannot be maintained completely at all frequencies in the audio range some side tone always occur.**

### 8.6.6. REMOTE FAX ACTIVATION CIRCUIT

1. **Function**
   **Another telephone connected to same line activates the unit to the FAX mode by using a DTMF signal.**
2. **Signal Path**
   **Refer to CHECK SHEET ().**

### 8.6.7. TAM INTERFACE CIRCUIT

**This circuit is to switch between FAX receiving and the external TAM's message recording automatically. This circuit consists of a transformer, multiplexer, amplifier.**
**For details, please refer TAM INTERFACE SECTION ().**

## 8.7. ITS (Integrated telephone System) and MONITOR SECTION

### 8.7.1. GENERAL

**The general ITS operation is performed by the special IC201 which has a handset circuit. The alarm tone, the key tone, and the beep are output from the ASIC IC604 (digital board).**

#### 8.7.1.1. TELEPHONE MONITOR

1. Function
   This is the function when you are not holding the handset and can hear the caller’s voice from the line.
2. Circuit Operation
   (Telephone Monitor Signal Path)
   Signals received from the telephone line are output through at the speaker via the following path.
3. Signal Path
   Refer to CHECK SHEET.

#### 8.7.1.2. HANDSET CIRCUIT

1. Function
   This circuit controls the conversation over the handset, i.e. the transmitted and received voices to and from the handset.
2. Signal Path (Transmission signal)
   Refer to CHECK SHEET.
3. Signal path (Reception signal)
   Refer to CHECK SHEET.

#### 8.7.1.3. MONITOR CIRCUIT

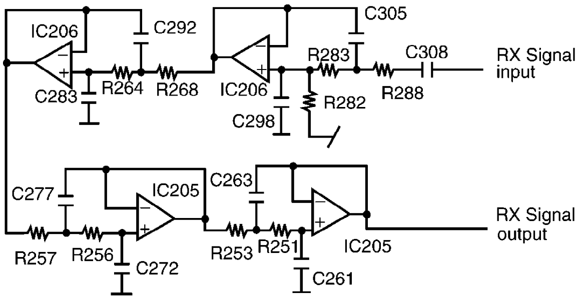
1. Function
   This circuit monitors various tones, such as (1) DTMF tone, (2) Alarm/Beep/Key tone/Bell.
2. Signal Path
   A. DTMF MONITOR
      (Speaker Operation)
      Refer to CHECK SHEET.
      (Handset Operation)
      Refer to CHECK SHEET.
   B. ALARM/BEEP/KEY TONE/BELL
      Refer to CHECK SHEET.

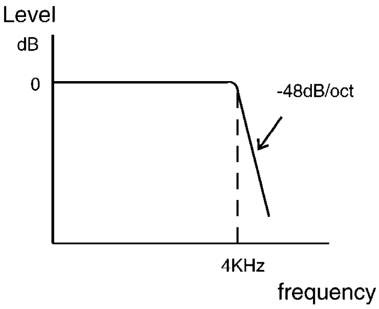
#### 8.7.1.4. LOW PASS FILTER

1. Function
   This low pass filter attenuates the 16-kHz account signal from the commutator to eliminate influence on the conversation and communication.

## 2. Circuit Operation

**This low pass filter is an eight-order active filter, and the cutoff frequency is approximately 4 kHz.**


IC206
C292
C305
R283
C308
RX Signal input
C283
R264
R268
IC206
R282
R288
C298
C277
IC205
C263
RX Signal output
R257
R256
C272
R253
R251
IC205
C261



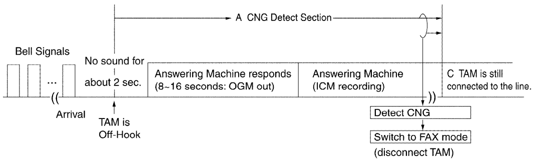
### 8.7.1.5. TAM INTERFACE SECTION

## 1. Function

**If EXT. TAM is selected in the Receive mode, the unit receives documents for FAX calls or the external TAM records a voice message automatically.**

**To switch between the answering machine and facsimile in the EXT. TAM Mode.**

| # | EXTERNAL TAM OPERATION | UNIT OPERATION |
|---|---|---|
| 1 | **When the bell signal rings as many times as the number memorized into the connected answering machine (TAM), the answering machine is connected to the line and the answering message is sent out to the line. (OGM out for 8 ~ 16 sec.)** | **The length of the answering message should be 8~16 seconds.**<br>**While the message is being played, the unit starts to detect the CNG signal.(A)**<br>**If the unit detects the CNG signal, it will switch to FAX receiving and disconnect the external TAM automatically.** |
| 2 | **After sending the OGM, the answering machine starts to record the message of the other party (ICM recording).** | **If the unit detect the CNG signal or the unit will disconnect the line. (C)** |


A CNG Detect Section
Bell Signals
No sound for about 2 sec.
Answering Machine responds (8~16 seconds: OGM out)
Answering Machine (ICM recording)
C TAM is still connected to the line.
Arrival
TAM is Off-Hook
Detect CNG
Switch to FAX mode
(disconnect TAM)

## 2. Circuit Operation

**The TAM INTERFACE circuit consists of CNG signal from the other party's detection circuit and RY202 (to separate EXT. TAM).**

**A. CNG signal detection circuit**

**The CNG signal from the other party's FAX is detected in ASIC IC604 via CODEC(IC609) (digital board).**

**(Signal path)**

**Refer to CHECK SHEET().**

**B. Remote receiving**

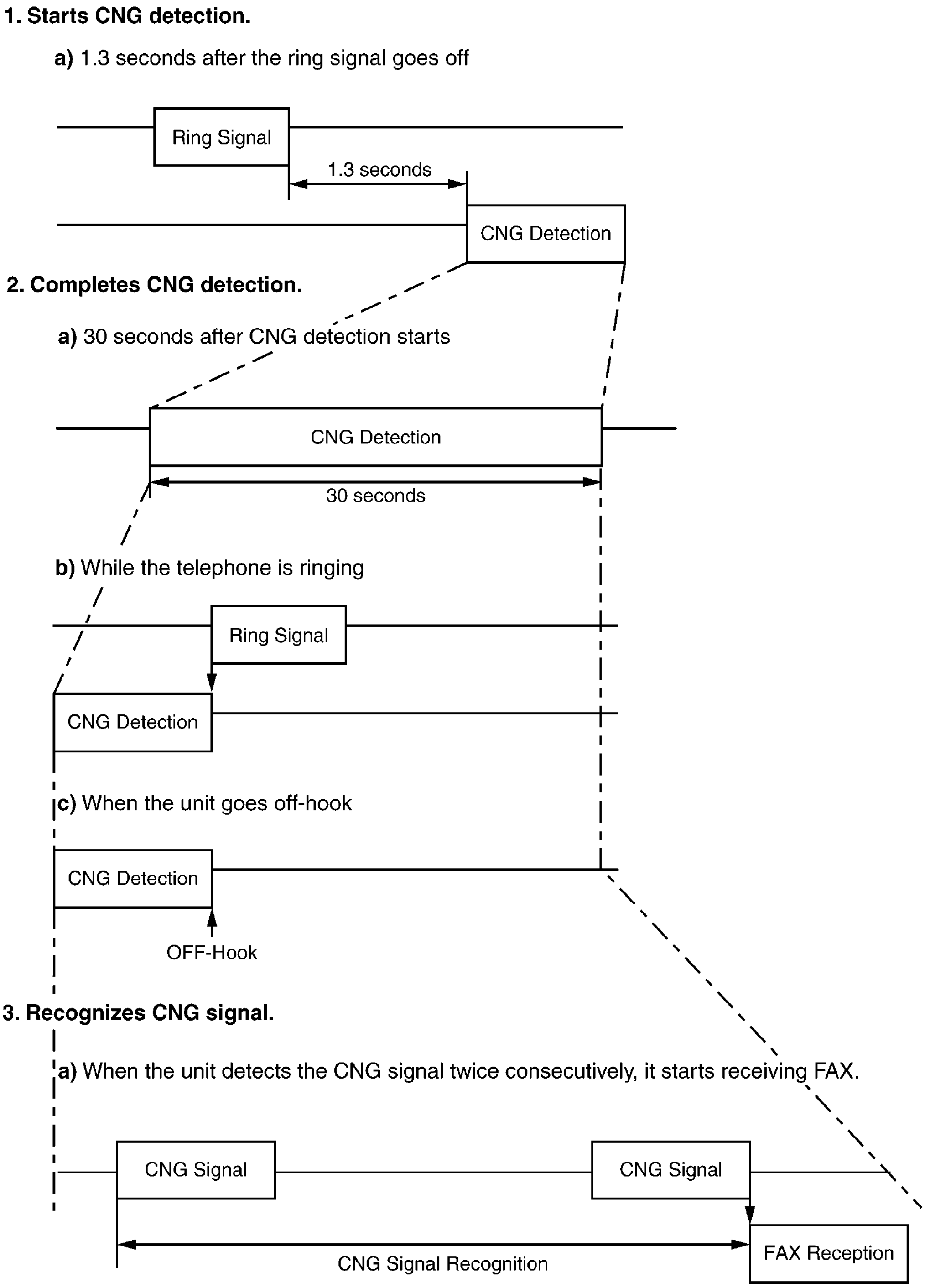
**This is the parallel-connected DTMF signal for the TEL or EXT.TEL mode between T and R. When the other party is a FAX, the unit switches to FAX receiving.**

**(Signal Path)**

**Detects the DTMF signal in the MODEM.**

### USER-FRIENDLY RECEPTION FOR PARALLEL-CONNECTED TELEPHONE

**When CNG signal is transmitted from the other party's phone after a parallel-connected phone or an external phone goes OFF-Hook while the telephone is ringing, the machine automatically starts receiving FAX.**



**1. Starts CNG detection.**

**a)** 1.3 seconds after the ring signal goes off

**2. Completes CNG detection.**

**a)** 30 seconds after CNG detection starts

**b)** While the telephone is ringing

**c)** When the unit goes off-hook

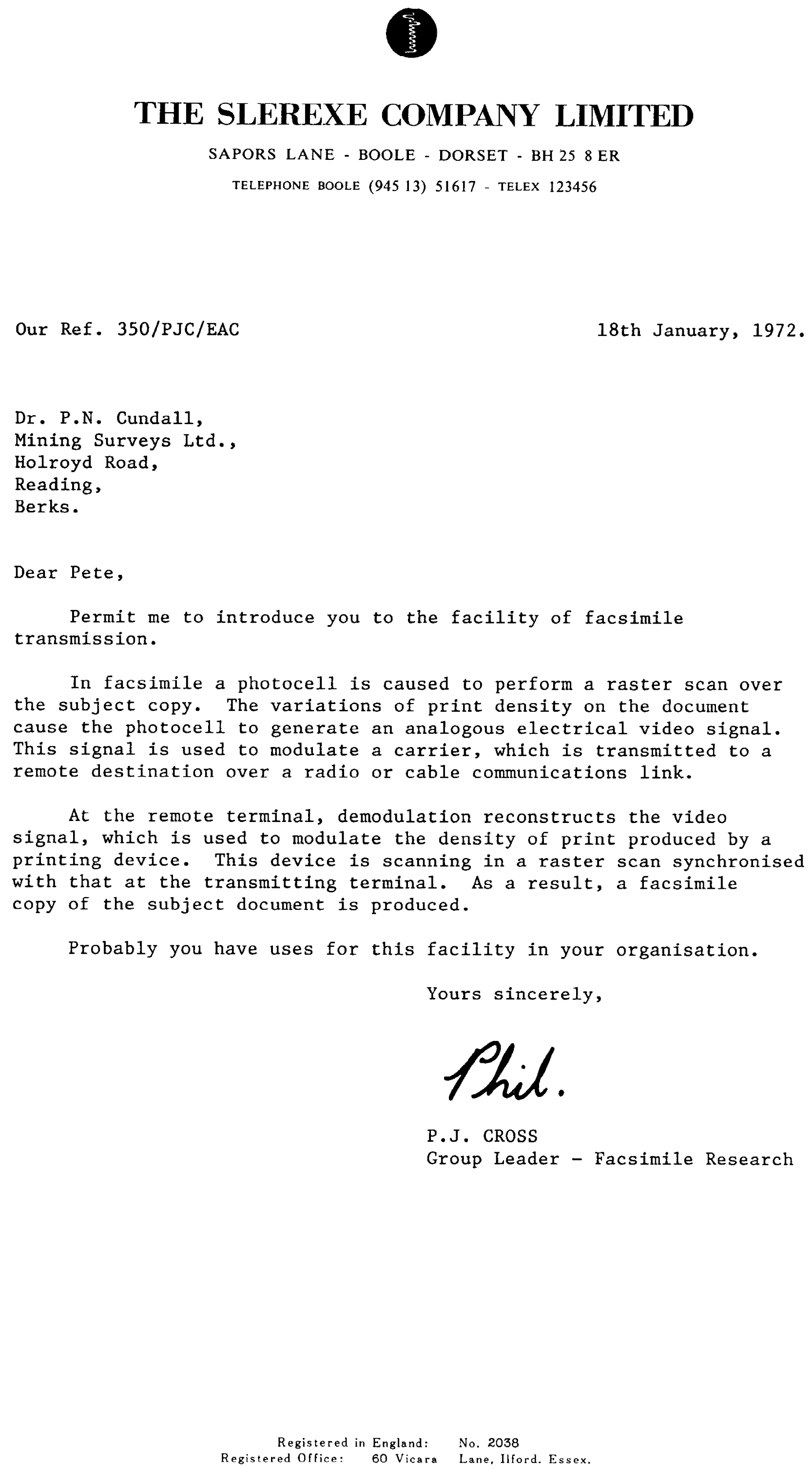
**3. Recognizes CNG signal.**

**a)** When the unit detects the CNG signal twice consecutively, it starts receiving FAX.

Ring Signal
1.3 seconds
CNG Detection
CNG Detection
30 seconds
Ring Signal
CNG Detection
CNG Detection
OFF-Hook
CNG Signal
CNG Signal
FAX Reception
CNG Signal Recognition

## 8.8. TEST CHART

### 8.8.1. ITU-T No.1 TEST CHART



THE SLEREXE COMPANY LIMITED
SAPORS LANE - BOOLE - DORSET - BH 25 8 ER
TELEPHONE BOOLE (945 13) 51617 - TELEX 123456

Our Ref. 350/PJC/EAC 18th January, 1972.

Dr. P.N. Cundall,
Mining Surveys Ltd.,
Holroyd Road,
Reading,
Berks.

Dear Pete,

Permit me to introduce you to the facility of facsimile transmission.

In facsimile a photocell is caused to perform a raster scan over the subject copy. The variations of print density on the document cause the photocell to generate an analogous electrical video signal. This signal is used to modulate a carrier, which is transmitted to a remote destination over a radio or cable communications link.

At the remote terminal, demodulation reconstructs the video signal, which is used to modulate the density of print produced by a printing device. This device is scanning in a raster scan synchronised with that at the transmitting terminal. As a result, a facsimile copy of the subject document is produced.

Probably you have uses for this facility in your organisation.

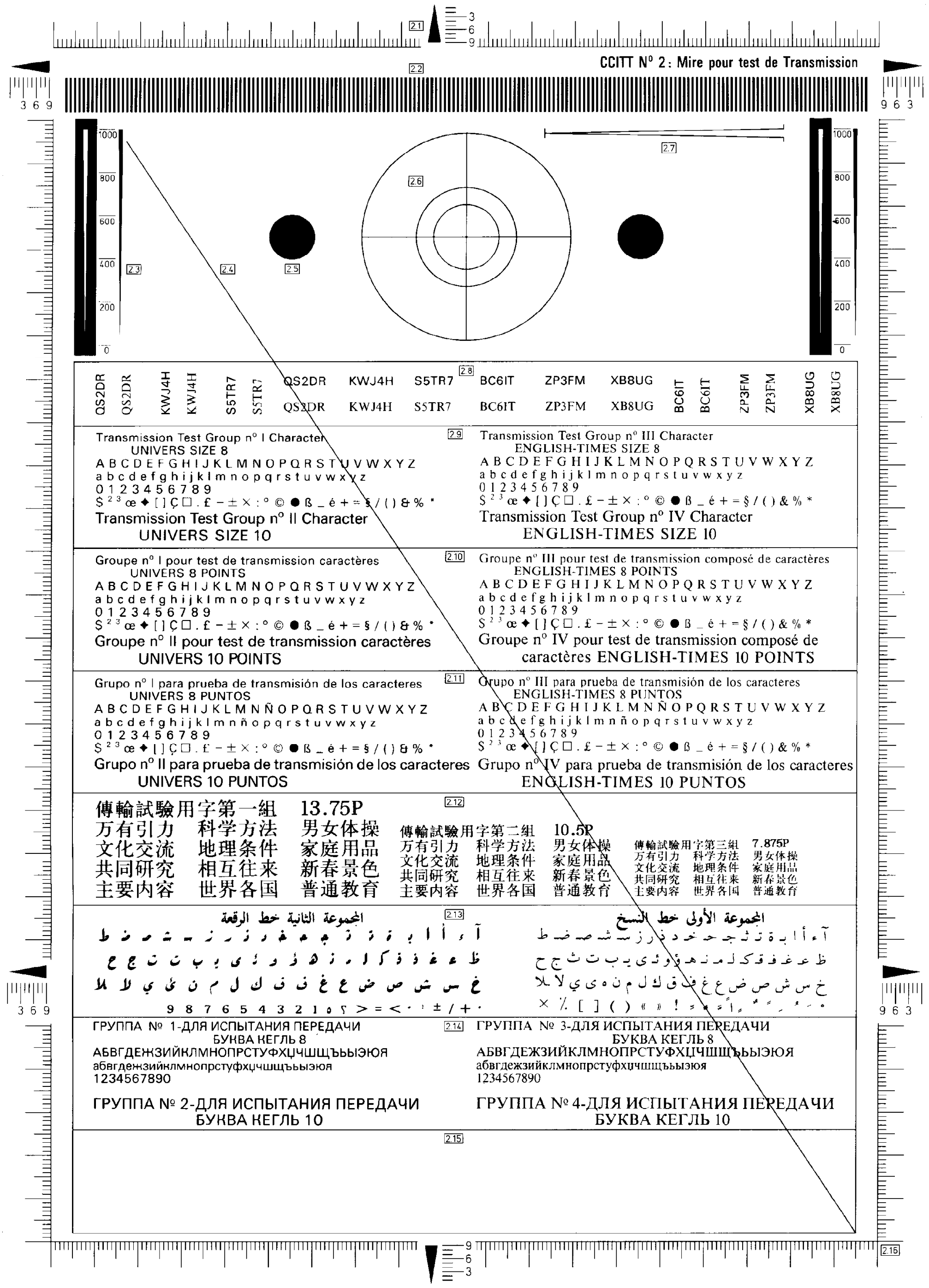
Yours sincerely,

Phil.

P.J. CROSS
Group Leader - Facsimile Research

Registered in England: No. 2038
Registered Office: 60 Vicara Lane, Ilford. Essex.

## 8.8.2. ITU-T No.2 TEST CHART


2.1
3
6
9
2.2
369
963
2.3
2.4
2.5
2.6
2.7
1000
800
600
400
200
0
2.8
2.9
2.10
2.11
2.12
2.13
2.14
2.15
2.16

CCITT N° 2 : Mire pour test de Transmission

QS2DR QS2DR KWJ4H KWJ4H S5TR7 S5TR7 QS2DR KWJ4H S5TR7 BC6IT ZP3FM XB8UG BC6IT BC6IT ZP3FM ZP3FM XB8UG XB8UG
QS2DR KWJ4H S5TR7 BC6IT ZP3FM XB8UG

Transmission Test Group n° I Character
UNIVERS SIZE 8
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
a b c d e f g h i j k l m n o p q r s t u v w x y z
0 1 2 3 4 5 6 7 8 9
$ ² ³ œ ◆ [ ] Ç □ . £ − ± × : ° © ● ß _ é + = § / ( ) & % *
Transmission Test Group n° II Character
UNIVERS SIZE 10

Transmission Test Group n° III Character
ENGLISH-TIMES SIZE 8
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
a b c d e f g h i j k l m n o p q r s t u v w x y z
0 1 2 3 4 5 6 7 8 9
$ ² ³ œ ◆ [ ] Ç □ . £ − ± × : ° © ● ß _ é + = § / ( ) & % *
Transmission Test Group n° IV Character
ENGLISH-TIMES SIZE 10

Groupe n° I pour test de transmission caractères
UNIVERS 8 POINTS
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
a b c d e f g h i j k l m n o p q r s t u v w x y z
0 1 2 3 4 5 6 7 8 9
$ ² ³ œ ◆ [ ] Ç □ . £ − ± × : ° © ● ß _ é + = § / ( ) & % *
Groupe n° II pour test de transmission caractères
UNIVERS 10 POINTS

Groupe n° III pour test de transmission composé de caractères
ENGLISH-TIMES 8 POINTS
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
a b c d e f g h i j k l m n o p q r s t u v w x y z
0 1 2 3 4 5 6 7 8 9
$ ² ³ œ ◆ [ ] Ç □ . £ − ± × : ° © ● ß _ é + = § / ( ) & % *
Groupe n° IV pour test de transmission composé de
caractères ENGLISH-TIMES 10 POINTS

Grupo n° I para prueba de transmisión de los caracteres
UNIVERS 8 PUNTOS
A B C D E F G H I J K L M N Ñ O P Q R S T U V W X Y Z
a b c d e f g h i j k l m n ñ o p q r s t u v w x y z
0 1 2 3 4 5 6 7 8 9
$ ² ³ œ ◆ [ ] Ç □ . £ − ± × : ° © ● ß _ é + = § / ( ) & % *
Grupo n° II para prueba de transmisión de los caracteres
UNIVERS 10 PUNTOS

Grupo n° III para prueba de transmisión de los caracteres
ENGLISH-TIMES 8 PUNTOS
A B C D E F G H I J K L M N Ñ O P Q R S T U V W X Y Z
a b c d e f g h i j k l m n ñ o p q r s t u v w x y z
0 1 2 3 4 5 6 7 8 9
$ ² ³ œ ◆ [ ] Ç □ . £ − ± × : ° © ● ß _ é + = § / ( ) & % *
Grupo n° IV para prueba de transmisión de los caracteres
ENGLISH-TIMES 10 PUNTOS

傳輸試驗用字第一組　13.75P
万有引力　科学方法　男女体操
文化交流　地理条件　家庭用品
共同研究　相互往来　新春景色
主要内容　世界各国　普通教育

傳輸試驗用字第二組　10.5P
万有引力　科学方法　男女体操
文化交流　地理条件　家庭用品
共同研究　相互往来　新春景色
主要内容　世界各国　普通教育

傳輸試驗用字第三組　7.875P
万有引力　科学方法　男女体操
文化交流　地理条件　家庭用品
共同研究　相互往来　新春景色
主要内容　世界各国　普通教育

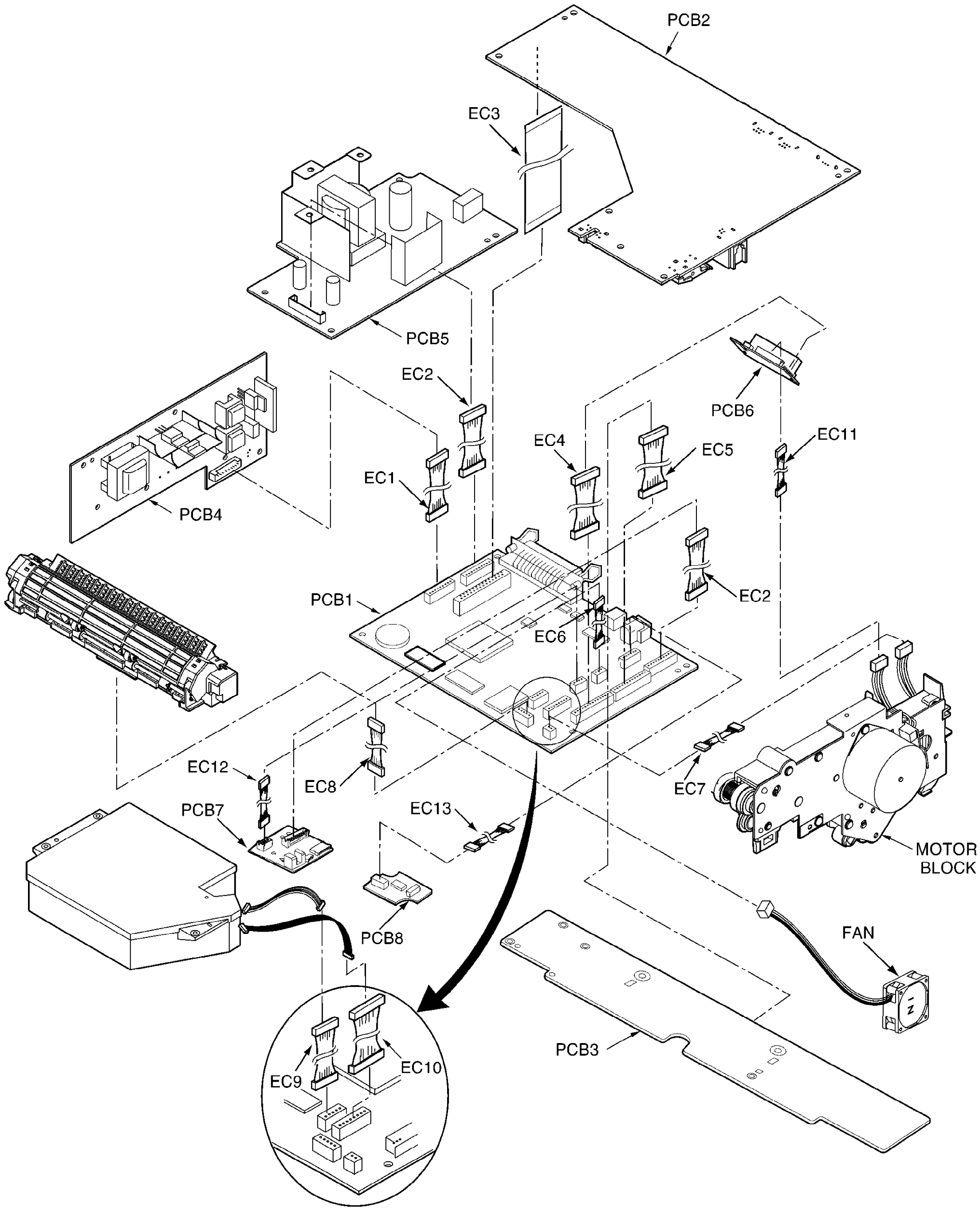
المجموعة الثانية خط الرقعة
آ ء أ ا ب ة ت ث ج ح خ د ذ ر ز س ش ص ض ط
ظ ع غ ف ق ك ل م ن ه ؤ و ئ ى ي ب ت ث ج ح
غ س ش ص ض ع غ ف ف ق ك ل م ن ئ ي لا لا
9 8 7 6 5 4 3 2 1 ٥ ؟ > = < ، ؛ ± / + .

المجموعة الأولى خط النسخ
آ ء أ ا ب ة ت ث ج ح خ د ذ ر ز س ش ص ض ط
ظ ع غ ف ق ك ل م ن ه ؤ و ئ ى ي ب ت ث ج ح
خ س ش ص ض ع غ ف ق ك ل م ن ه ى ي لا لا
× ٪ [ ] ( ) « » !

ГРУППА № 1-ДЛЯ ИСПЫТАНИЯ ПЕРЕДАЧИ
БУКВА КЕГЛЬ 8
АБВГДЕЖЗИЙКЛМНОПРСТУФХЦЧШЩЪЬЫЭЮЯ
абвгдежзийклмнопрстуфхцчшщъьыэюя
1234567890
ГРУППА № 2-ДЛЯ ИСПЫТАНИЯ ПЕРЕДАЧИ
БУКВА КЕГЛЬ 10

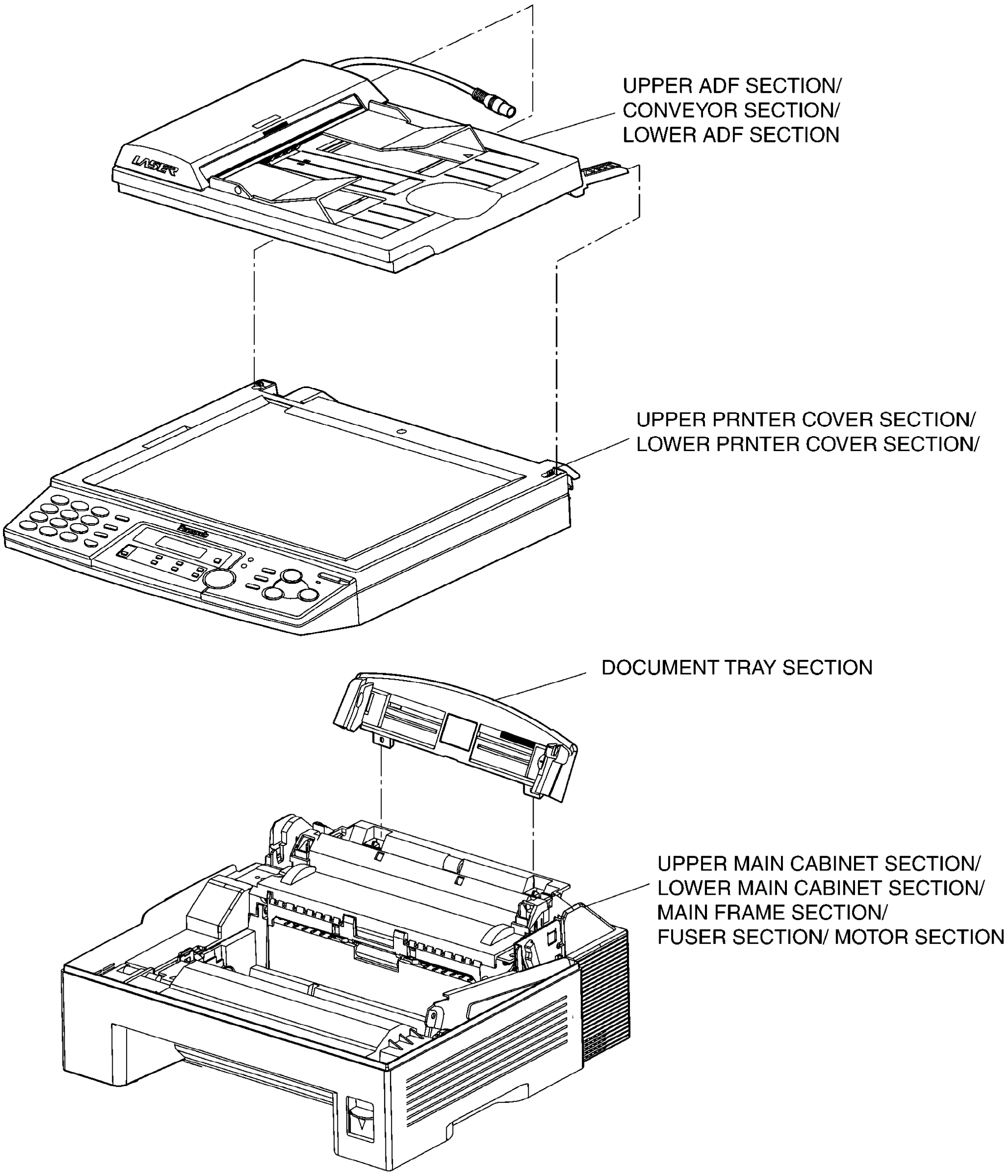
ГРУППА № 3-ДЛЯ ИСПЫТАНИЯ ПЕРЕДАЧИ
БУКВА КЕГЛЬ 8
АБВГДЕЖЗИЙКЛМНОПРСТУФХЦЧШЩЪЬЫЭЮЯ
абвгдежзийклмнопрстуфхцчшщъьыэюя
1234567890
ГРУППА № 4-ДЛЯ ИСПЫТАНИЯ ПЕРЕДАЧИ
БУКВА КЕГЛЬ 10

# 9. FIXTURES AND TOOLS

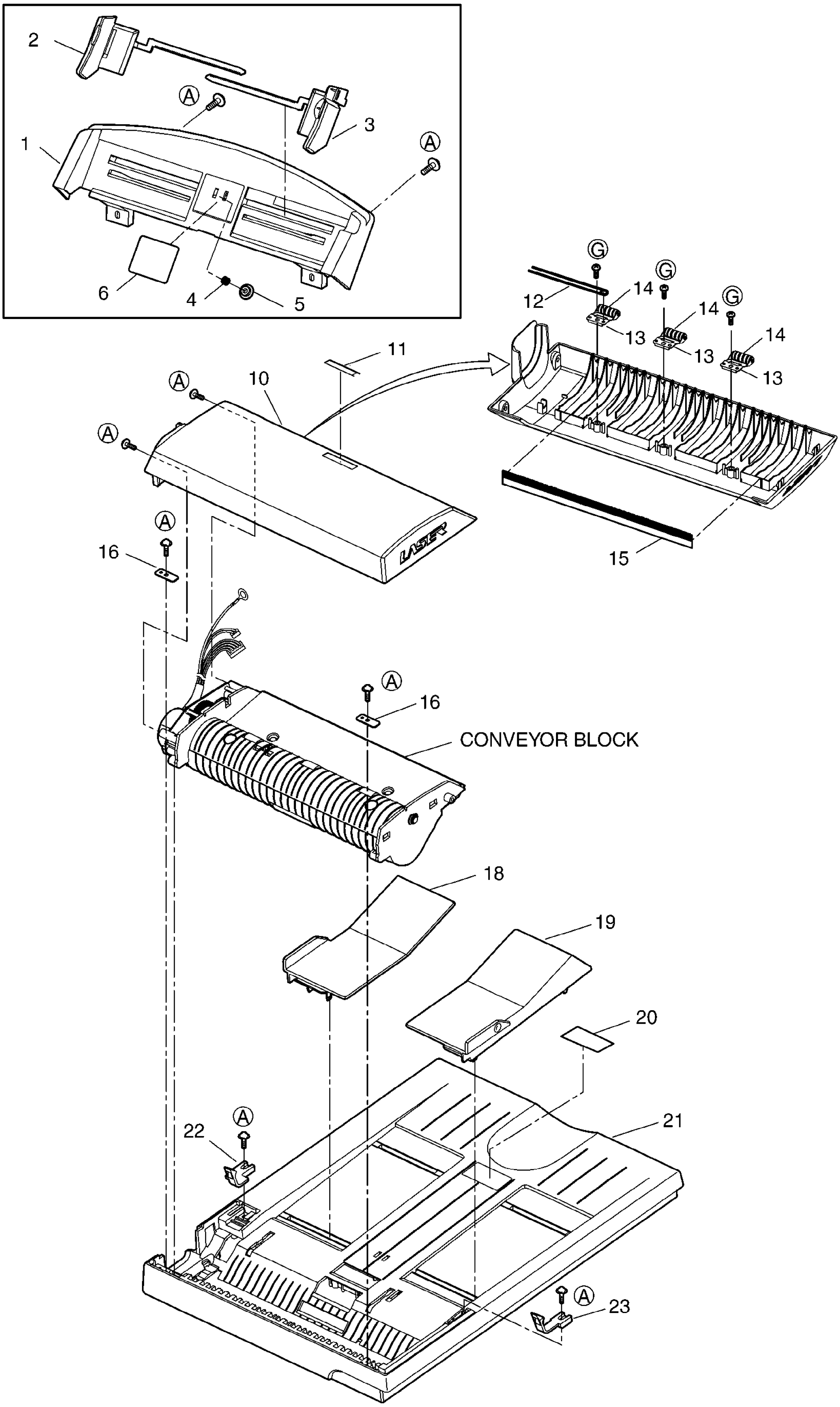

PCB2
EC3
PCB5
EC2
PCB6
EC11
EC4
EC5
EC1
PCB4
PCB1
EC2
EC6
EC12
EC8
PCB7
EC13
EC7
MOTOR
BLOCK
FAN
PCB8
PCB3
EC9
EC10

# 10. CABINET, MECHANICAL AND ELECTRICAL PARTS LOCATION

## 10.1. GENERAL SECTON


UPPER ADF SECTION/
CONVEYOR SECTION/
LOWER ADF SECTION
LASER
UPPER PRNTER COVER SECTION/
LOWER PRNTER COVER SECTION/
DOCUMENT TRAY SECTION
UPPER MAIN CABINET SECTION/
LOWER MAIN CABINET SECTION/
MAIN FRAME SECTION/
FUSER SECTION/ MOTOR SECTION

## 10.2. DOCUMENT TRAY BLOCK AND UPPER ADF SECTION


2
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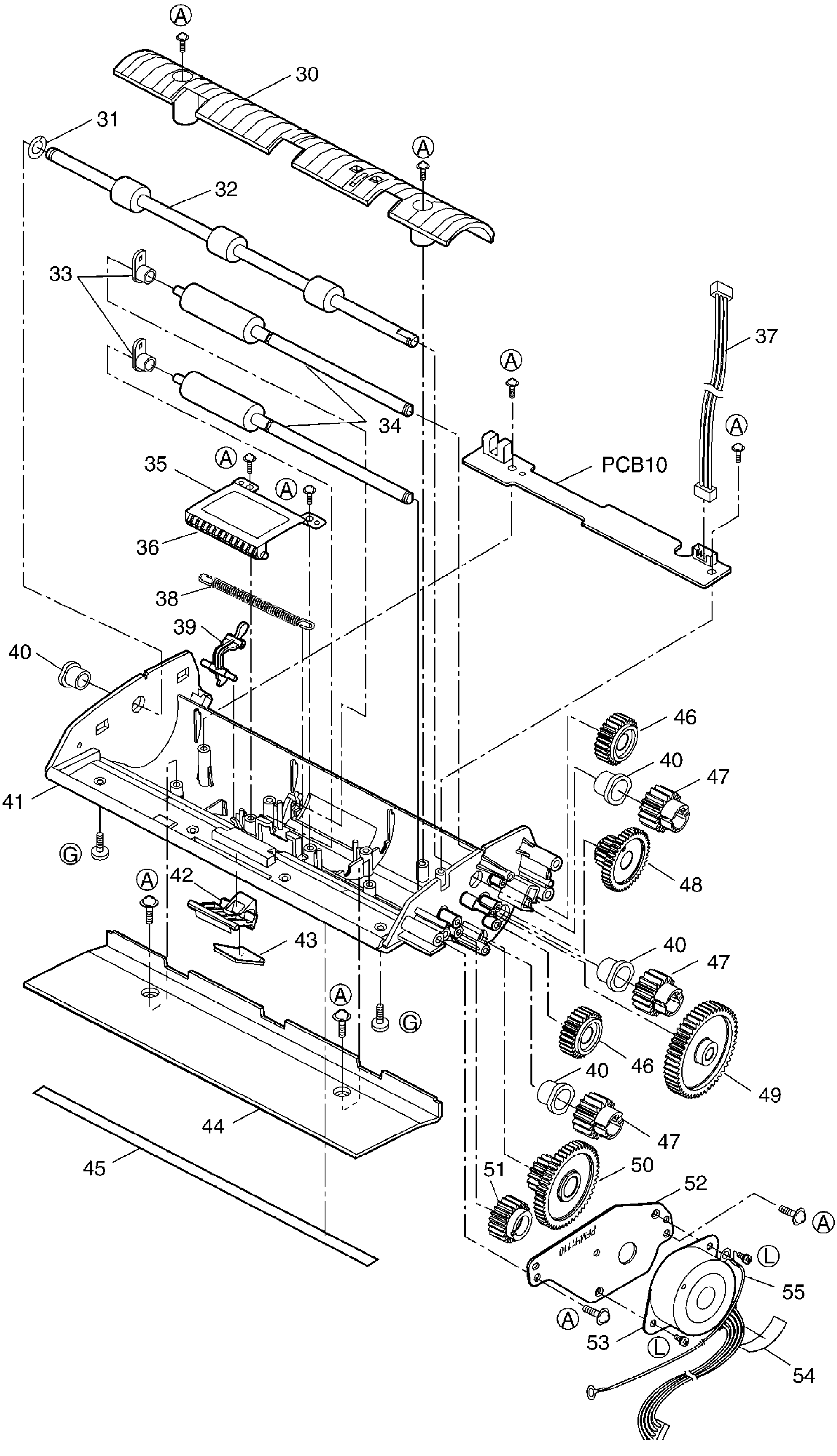
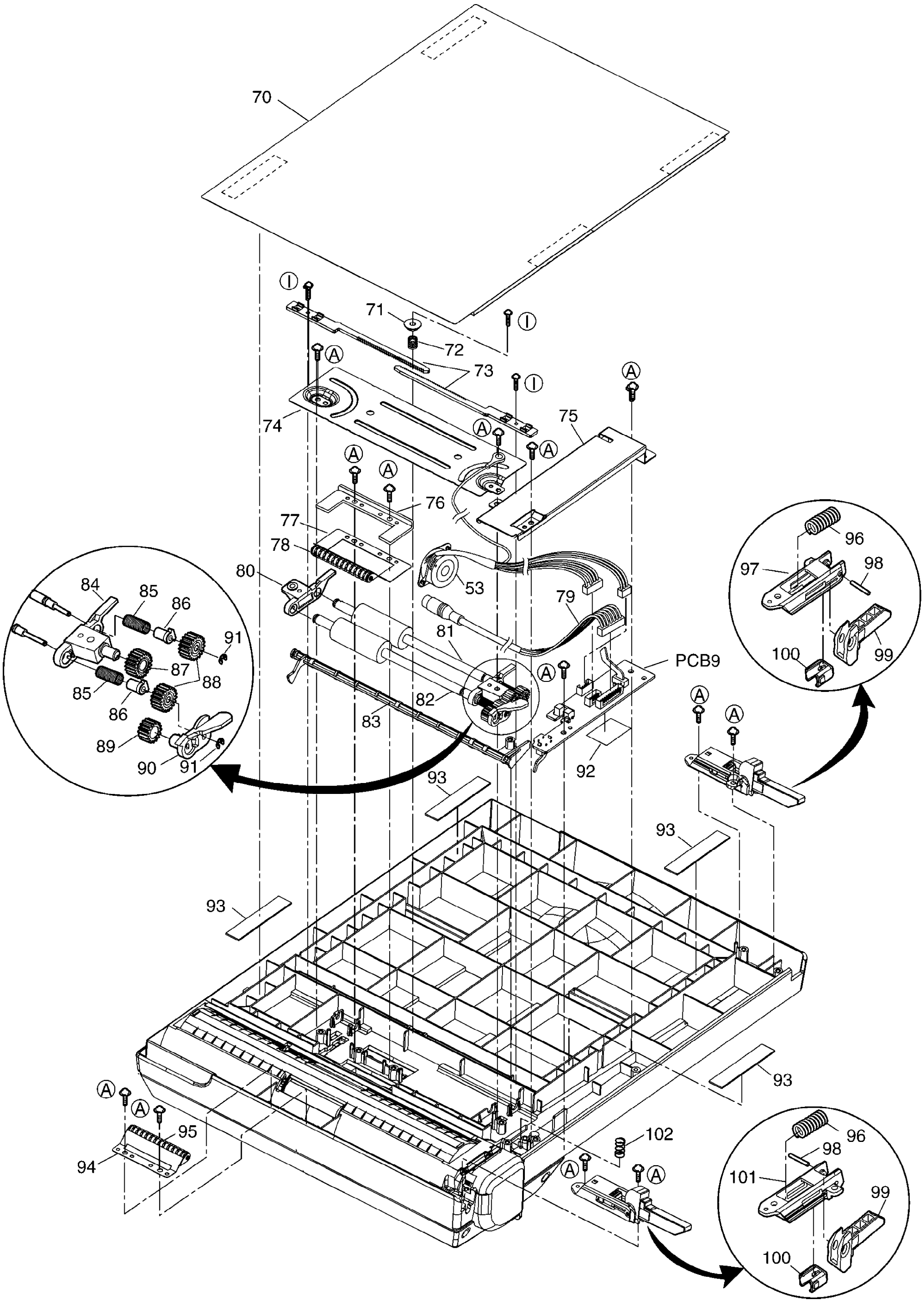
3
1
Ⓐ
6
4
5
Ⓖ
Ⓖ
14
Ⓖ
12
14
13
14
13
13
11
Ⓐ
10
Ⓐ
15
Ⓐ
16
LASER
Ⓐ
16
CONVEYOR BLOCK
18
19
20
21
Ⓐ
22
Ⓐ
23

## 10.3. CONVERYOR BLOCK SECTION


A
A
A
A
PCB10
A
A
G
A
A
G
A
PNMH1110
L
A
L

## 10.4. LOWER ADF SECTION


70
Ⓘ
71
72
73
Ⓐ
74
75
76
77
78
80
53
79
81
PCB9
82
83
92
93
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97
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100
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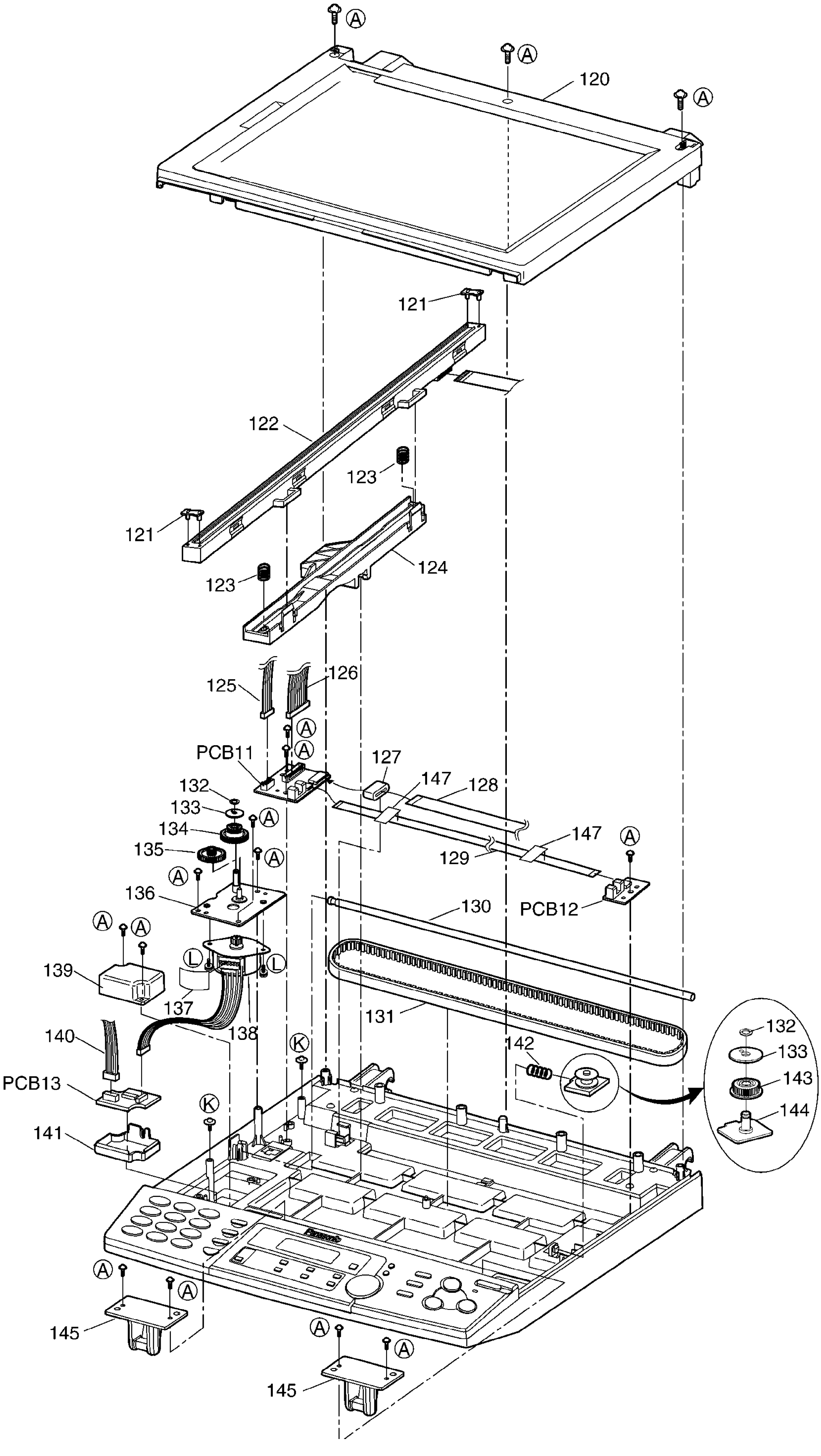
100

## 10.5. UPPER PRINTER COVER SECTION


A
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A
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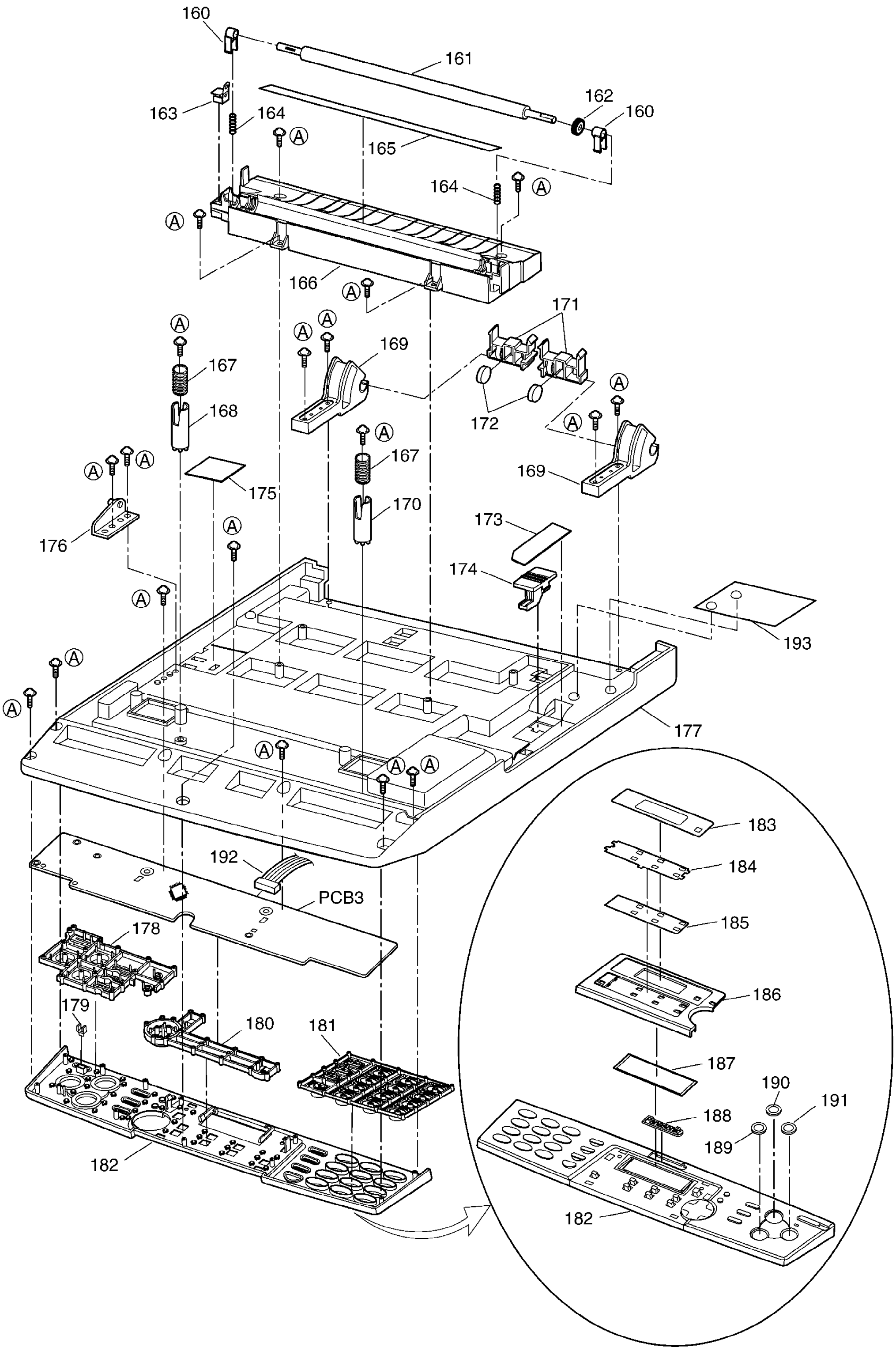
PCB11
A
A
A
A
PCB12
A
A
L
L
K
PCB13
K
A
A
A
A

## 10.6. LOWER PRINTER SECTION


160
161
163
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162
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Ⓐ
165
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170
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173
174
193
177
183
184
192
PCB3
185
178
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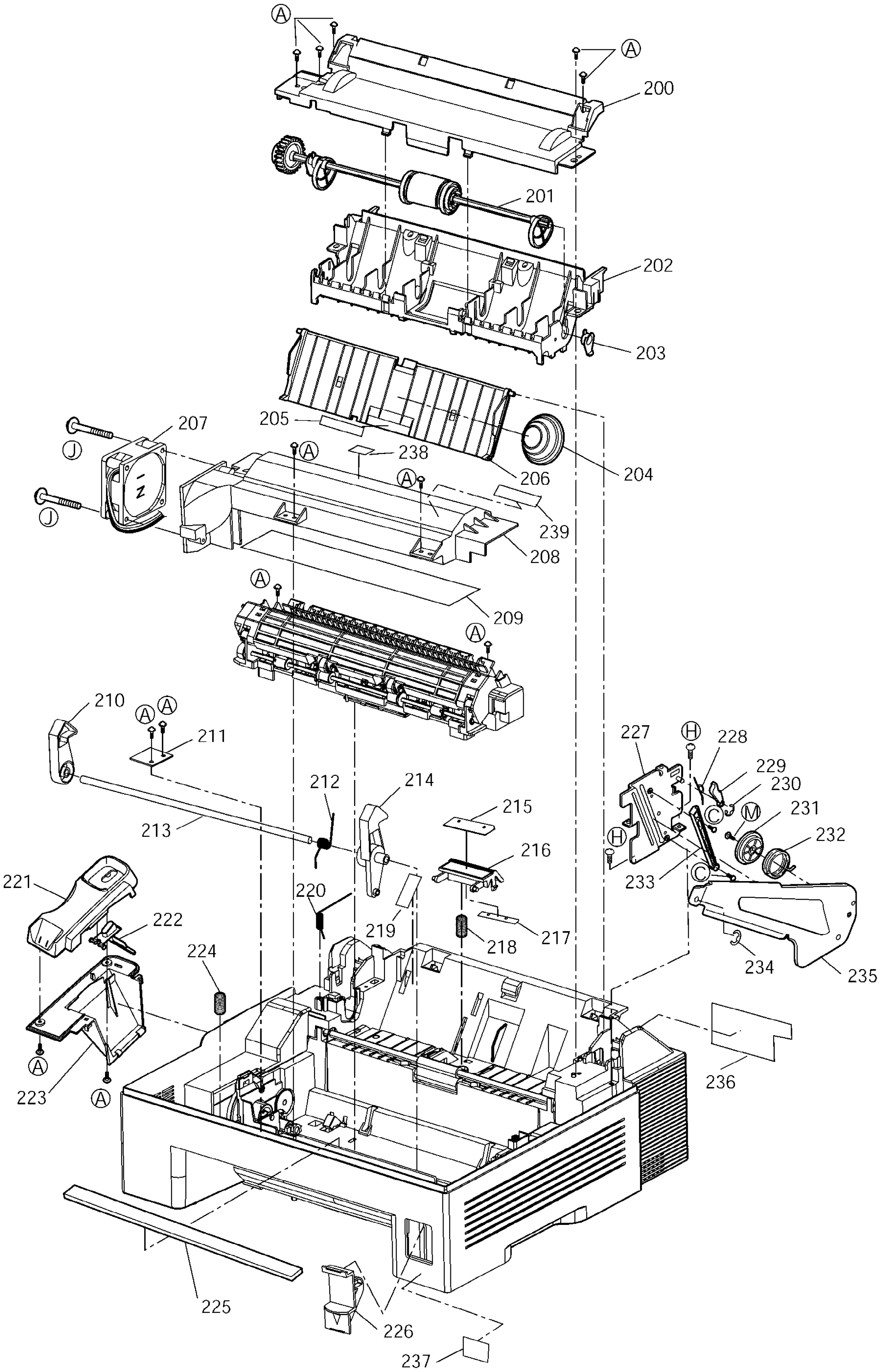
182

## 10.7. UPPER MAIN CABINET SECTION


Ⓐ
Ⓐ
200
201
202
203
207
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238
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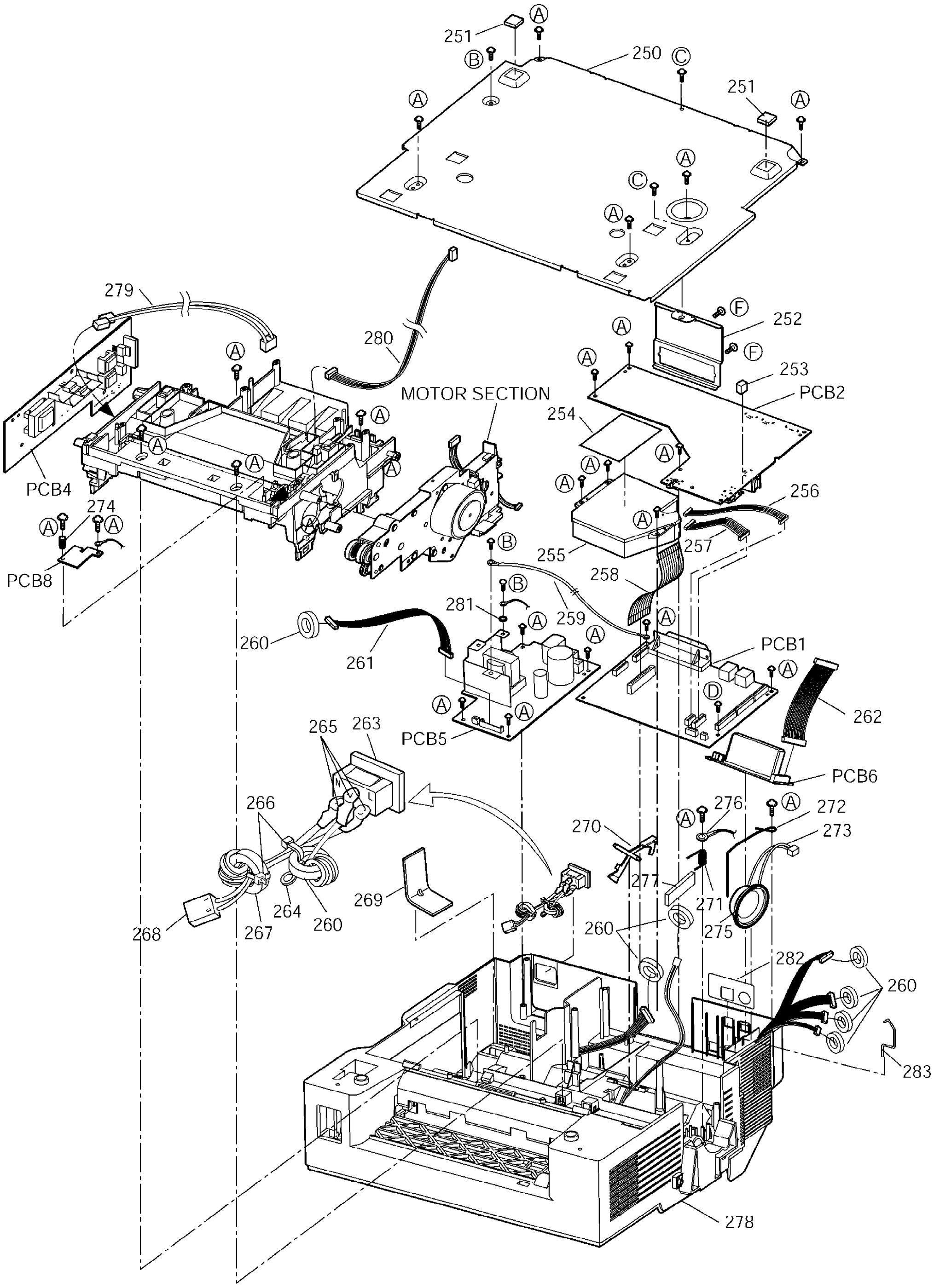
## 10.8. LOWER MAIN CABINET SECTION


251
Ⓐ
250
Ⓒ
Ⓑ
251
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279
280
Ⓐ
Ⓕ
252
Ⓐ
Ⓕ
253
Ⓐ
PCB2
MOTOR SECTION
Ⓐ
254
Ⓐ
Ⓐ
Ⓐ
Ⓐ
Ⓐ
PCB4
Ⓐ
256
274
Ⓐ
Ⓐ
Ⓐ
Ⓑ
255
257
PCB8
258
Ⓑ
281
259
Ⓐ
Ⓐ
Ⓐ
260
261
PCB1
Ⓐ
Ⓓ
262
Ⓐ
Ⓐ
265
263
PCB5
PCB6
266
276
Ⓐ
Ⓐ
272
270
273
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264
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267
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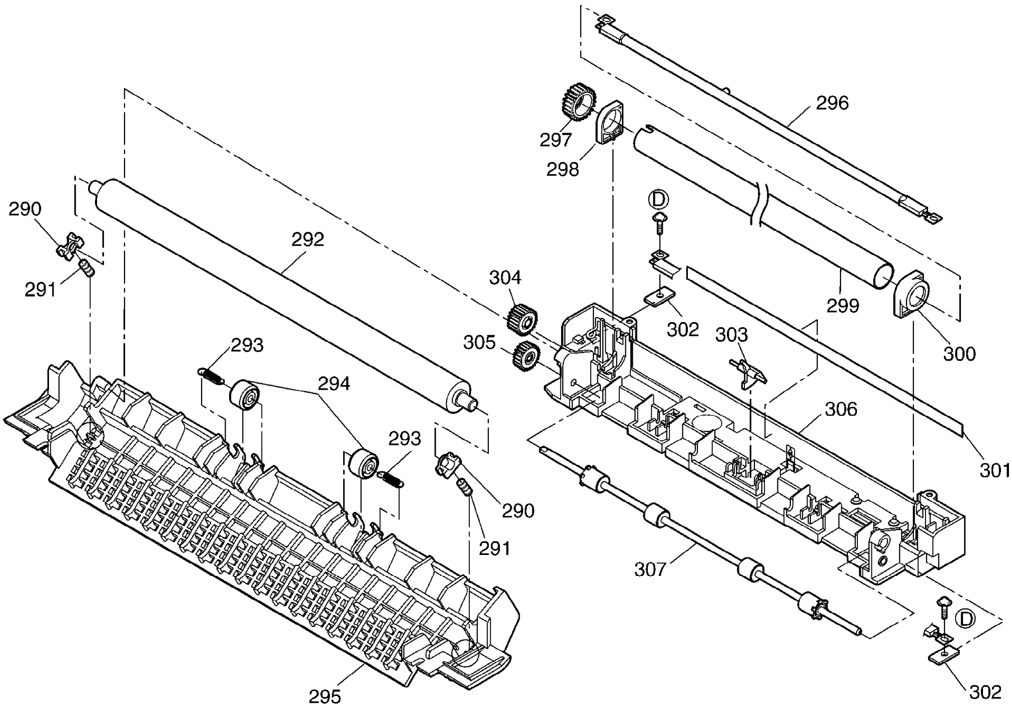
260
275
282
260
283
278

## 10.9. FUSER SECTION

(Top view)


296
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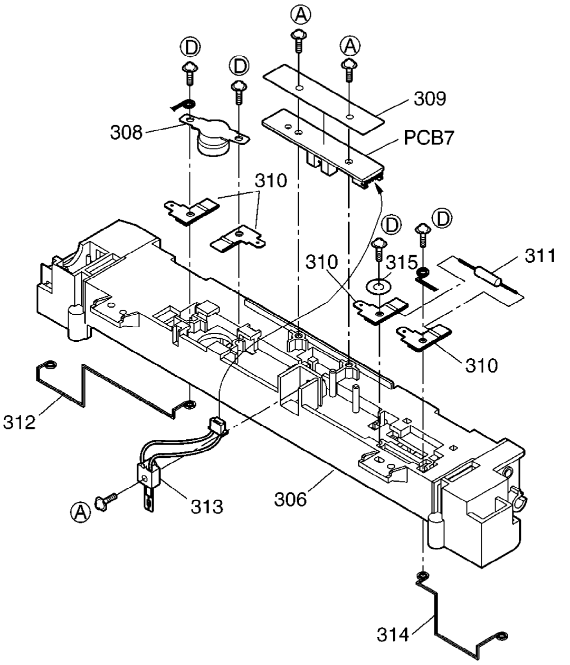
295
302

(Bottom view)


Ⓐ
Ⓓ
Ⓐ
Ⓓ
309
308
PCB7
310
Ⓓ
Ⓓ
311
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315
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312
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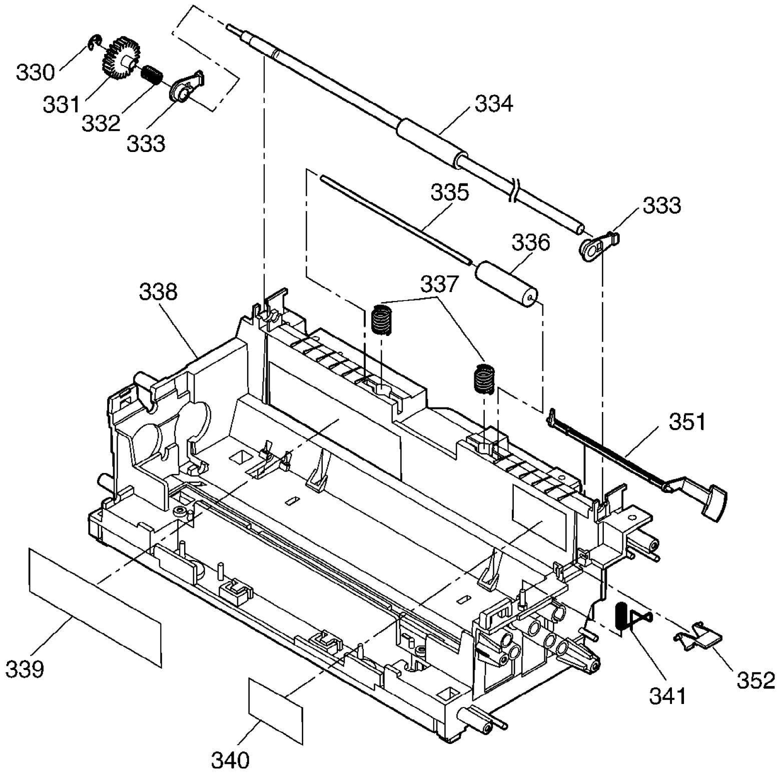
306
Ⓐ
314

## 10.10. MAIN FRAME SECTION

(Top view)


330
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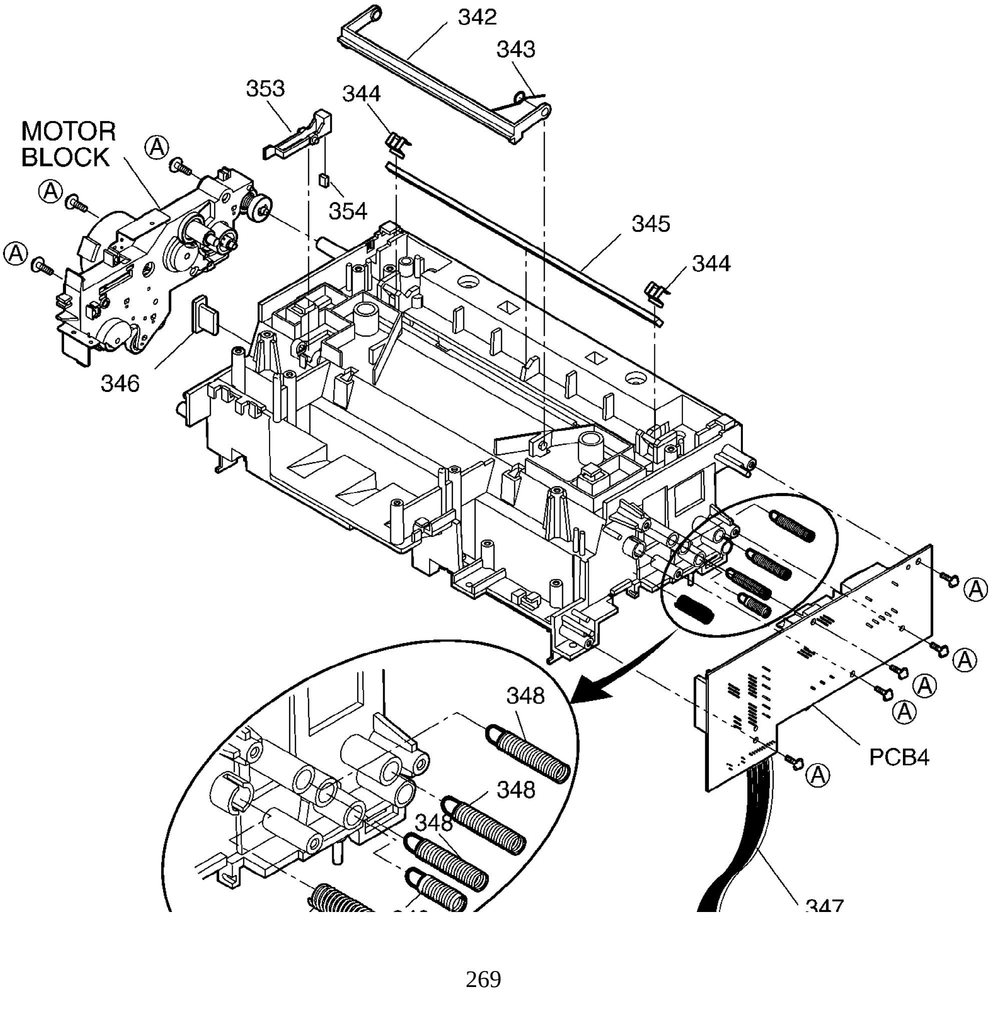
340

(Bottom view)


342
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353
344
MOTOR BLOCK
Ⓐ
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354
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Ⓐ
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Ⓐ
348
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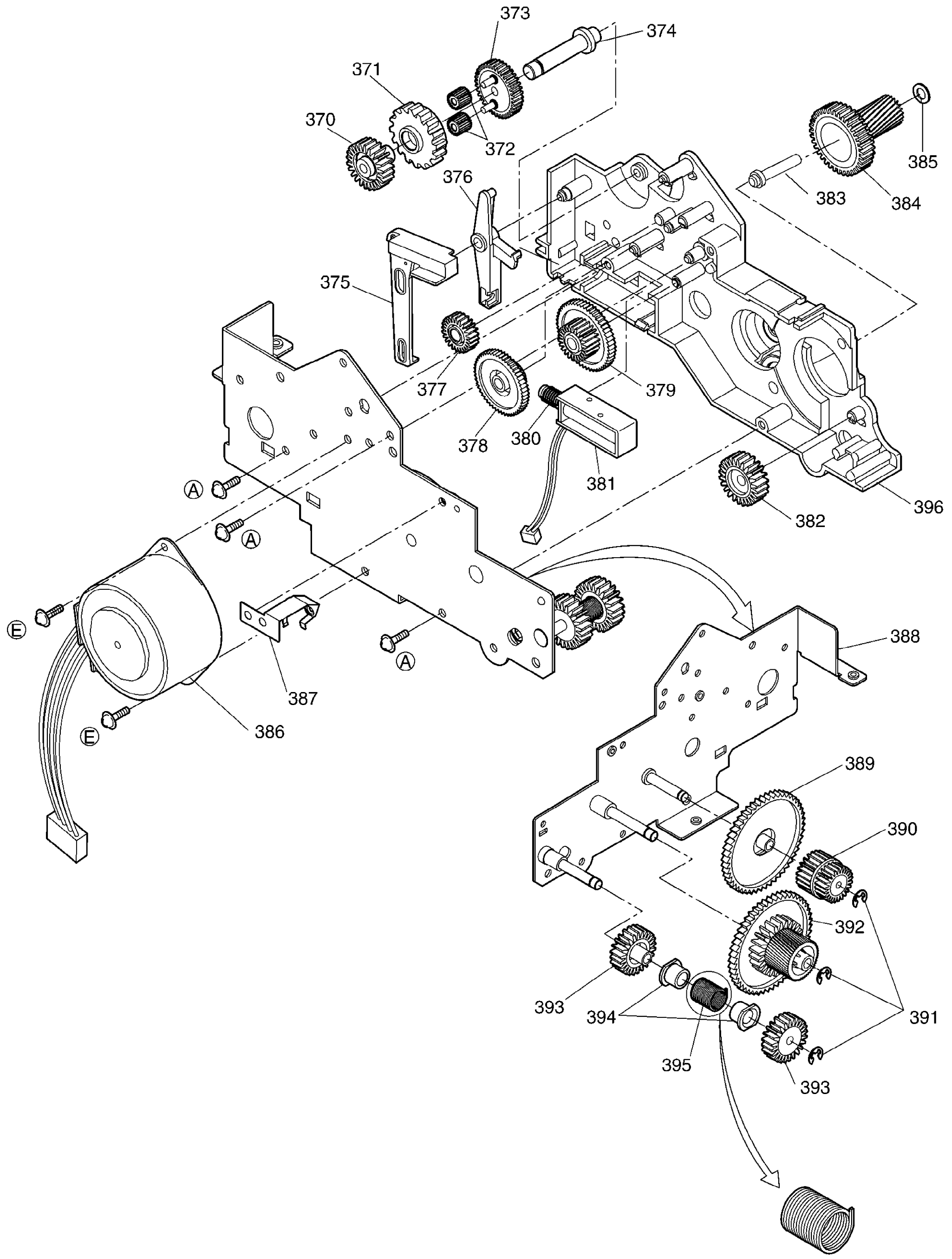
348
PCB4
347

## 10.11. MOTOR SECTION


373
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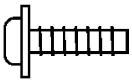
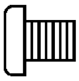
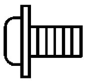
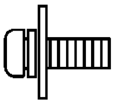
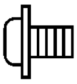
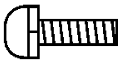
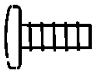
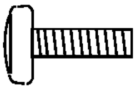
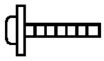
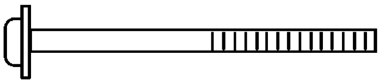
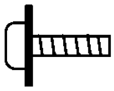
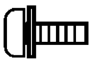
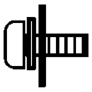
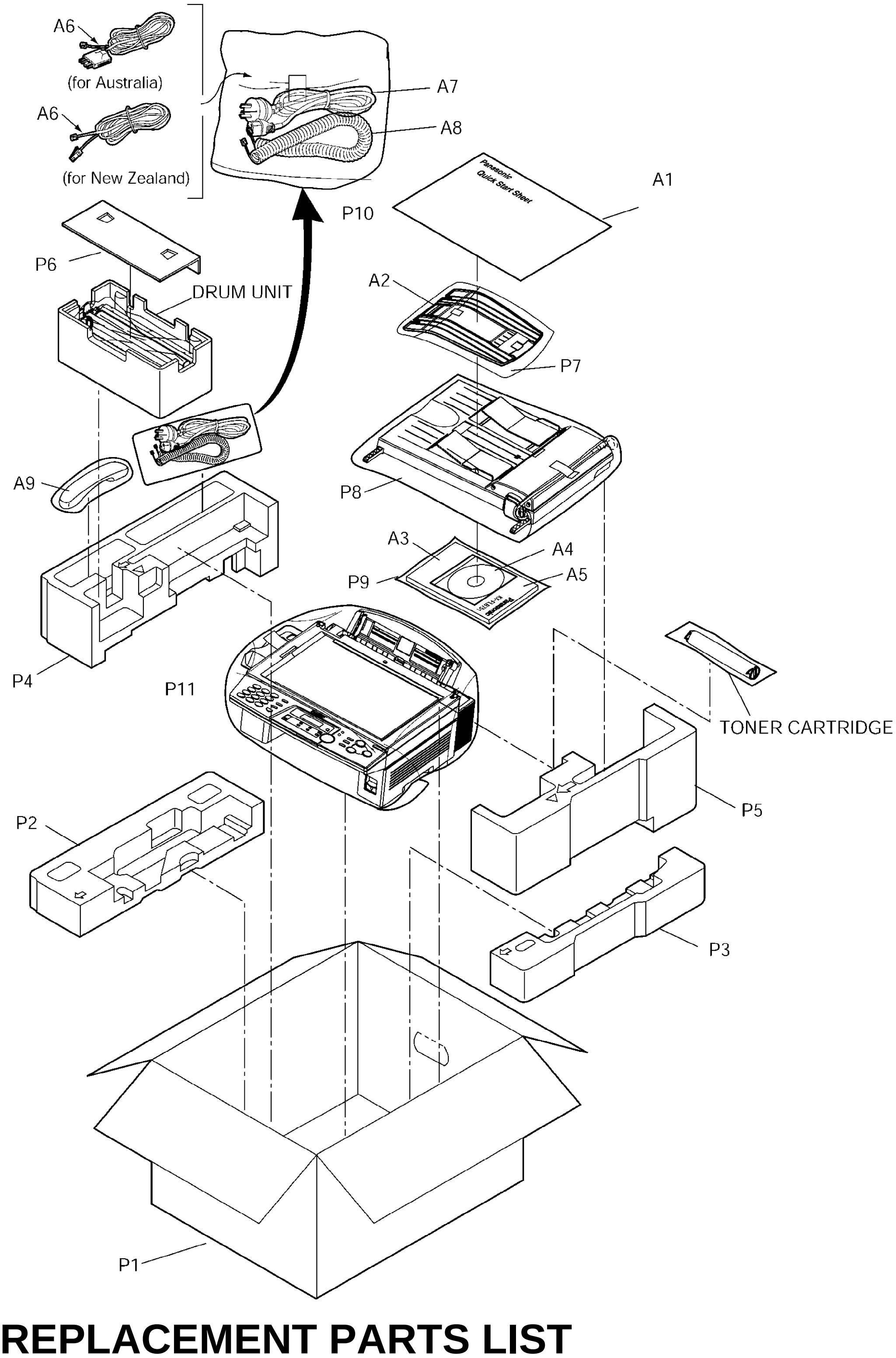
393

## 10.12. ACTUAL SIZE OF SCREWS AND WASHER

|  | Parts No. | Illustration |
|---|---|---|
| Ⓐ | XTW3+S10P |  |
| Ⓑ | XSB4+6 |  |
| Ⓒ | XTW3+6L |  |
| Ⓓ | XYC3+FF8C |  |
| Ⓔ | XTW3+5LFZ |  |
| Ⓕ | XSN3+6L |  |
| Ⓖ | XTB3+8G |  |
| Ⓗ | XTB4+10G |  |
| Ⓘ | XTW2+R8PFN |  |
| Ⓙ | XTW3+S35P |  |
| Ⓚ | XTW3+W8P |  |
| Ⓛ | XYN3+C6 |  |
| Ⓜ | XYN3+F6 |  |

# 11. ACCESSORIES AND PACKING MATERIALS



A6
(for Australia)
A6
(for New Zealand)
A7
A8
A1
P10
P6
DRUM UNIT
A2
P7
A9
P8
A3
A4
A5
P9
P4
P11
TONER CARTRIDGE
P2
P5
P3
P1

# 12. REPLACEMENT PARTS LIST

**Notes:**

**1. The marking (RTL) indicates that the Retention Time is limited for this item.**
**After the discontinuation of this assembly in production, the item**

**will continue to be available for a specific period of time. The retention period of availability is dependent on the type of assembly, and in accordance with the laws governing parts and product retention.**

**After the end of this period, the assembly will no longer be available.**

2. **Important safety notice**

   **Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacture's specified parts.**

3. **The S mark means the part is one of some identical parts.For that reason,it may be different from the installed part.**

4. **ISO code (Example : ABS-HB) of the remarks column shows quality of the material and a flame resisting grade about plastics.**

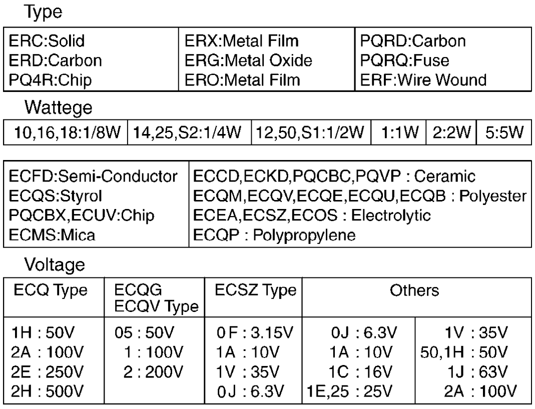
5. **RESISTORS & CAPACITORS**

   **Unless otherwise specified;**

   **All resistors are in ohms ( Ω ) k=1000 Ω , M=1000k Ω**

   **All capacitors are in MICRO FARADS ( μ F) P= μ μ F**

   ***Type & Wattage of Resistor**



Type

| | | |
|---|---|---|
| ERC:Solid<br>ERD:Carbon<br>PQ4R:Chip | ERX:Metal Film<br>ERG:Metal Oxide<br>ERO:Metal Film | PQRD:Carbon<br>PQRQ:Fuse<br>ERF:Wire Wound |

Wattege

| | | | | | |
|---|---|---|---|---|---|
| 10,16,18:1/8W | 14,25,S2:1/4W | 12,50,S1:1/2W | 1:1W | 2:2W | 5:5W |

| | |
|---|---|
| ECFD:Semi-Conductor<br>ECQS:Styrol<br>PQCBX,ECUV:Chip<br>ECMS:Mica | ECCD,ECKD,PQCBC,PQVP : Ceramic<br>ECQM,ECQV,ECQE,ECQU,ECQB : Polyester<br>ECEA,ECSZ,ECOS : Electrolytic<br>ECQP : Polypropylene |

Voltage

| ECQ Type | ECQG ECQV Type | ECSZ Type | Others | |
|---|---|---|---|---|
| 1H : 50V<br>2A : 100V<br>2E : 250V<br>2H : 500V | 05 : 50V<br>1 : 100V<br>2 : 200V | 0F : 3.15V<br>1A : 10V<br>1V : 35V<br>0J : 6.3V | 0J : 6.3V<br>1A : 10V<br>1C : 16V<br>1E,25 : 25V | 1V : 35V<br>50,1H : 50V<br>1J : 63V<br>2A : 100V |

## 12.1. CABINET AND ELECTRICAL PARTS

### 12.1.1. DOCUMENT TRAY BLOCK AND UPPER ADF SECTION

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| 1 | PFKS1063Y1 | TRAY | PS-HB |
| 2 | PFKR1023Z1 | GUIDE,PAPER SLIDE L | ABS-HB |
| 3 | PFKR1024Z1 | GUIDE,PAPER SLIDE R | ABS-HB |
| 4 | PFUS1222Z | SPRING,SLIDER | |
| 5 | PFDG1015Y | GEAR,SLIDER | POM-MB |
| 6 | PFQT1852Z | LABEL,MULTI TRAY | |
| 10 | PFKV1051X1 | COVER | PS-HB |
| 11 | PFQT1850Z | LABEL,PULL TO OPEN | |
| 12 | PFUS1351Z | SPRING,EXIT EARTH | |
| 13 | PFUS1343Z | SPRING,EXIT PINCH ROLLER | |
| 14 | PFDR1030Z | ROLLER,EXIT PINCH | POM-HB |
| 15 | PFJV1002Z | HOLDER | |
| 16 | PFMH1111Z | METAL PART/ADF PIVOT | |
| 17 | Not used | | |
| 18 | PFKR1021Y1 | GUIDE,DOCUMENT R | ABS-HB |
| 19 | PFKR1022Y1 | GUIDE,DOCUMENT L | ABS-HB |
| 20 | PFQT1838Z | LABEL,FACE DOWN | |
| 21 | PFKV1050V1 | COVER,TOP | PS-HB |
| 22 | PFDE1177Z | LEVER,LOCK ADF R | POM-HB |
| 23 | PFDE1178Z | LEVER,LOCK ADF L | POM-HB |

## 12.1.2. CONVERYOR SECTION

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| 30 | PFUE1012Z1 | COVER,CONVEYOR EXIT | PS-HB |
| 31 | PFNPD052080 | SPACER | |
| 32 | PFDN1056Z | ROLLER,ROLLER EXIT | |
| 33 | PFDJ1056Z | SPACER,DRIVE ROLLER2 | |
| 34 | PFDN1055Z | ROLLER,DRIVE | POM-HB |
| 35 | PFUS1340Z | LEAF SPRING,FEED PINCH | |
| 36 | PFDR1029Z | ROLLER,FEED PINCH | POM-HB |
| 37 | PFJS03Q28Z | CONNECTOR | |
| 38 | PFUS1348Z | COIL SPRING,SEPA. RUBBER | |
| 39 | PFDE1175Y | LEVER,DOCUMENT TOP | POM-HB |
| 40 | PFDJ1055Z | SPACER,DRIVE ROLLER1 | POM-HB |
| 41 | PFUE1011Y1 | FRAME,VONVEYOR MAIN | PS-HB |
| 42 | PFHR1297Z | GUIDE,SEPARATION RUBBER | ABS-HB |
| 43 | PFHG1128Z | RUBBER PART,SEPARATION | |
| 44 | PFKV1052Z1 | COVER,DOCUMENT FEED | PS-HB |
| 45 | PFHX1512Z | METAL PART,WHITE STANDARD | |
| 46 | PFDG1250Z | GEAR,IDLER DRIVE | |
| 47 | PFDG1249Z | GEAR,DRIVE ROLLER | POM-HB |
| 48 | PFDG1247Z | GEAR | POM-HB |
| 49 | PFDG1246Z | GEAR | POM-HB |
| 50 | PFDG1248Z | GEAR | POM-HB |
| 51 | PFDG1251Z | GEAR,IDLER SEPARATION | POM-HB |
| 52 | PFMH1110Z | METAL PART,ADF MOTOR | |
| 53 | 35S1S15DGNE | DC MOTOR | |
| 54 | PFHX1399Z | COVER,MOTOR | |
| 55 | WLK22TG17M3M | CONNECTOR,EARTH ADF | |

## 12.1.3. LOWER ADF SECTION

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| 70 | PFHX1511Y | COVER,WHITE PLATE | |
| 71 | PFDG1015Y | GEAR,SLIDER | POM-HB |
| 72 | PFUS1222Z | COIL SPRING,SLIDER | |
| 73 | PFHR1298Z | RACK,GUIDE DOCUMENT | ABS-HB |
| 74 | PFUV1044Z | COVER,FEED MODULE | PS-V0 |
| 75 | PFUV1043Z | COVER,GEAR | PS-V0 |
| 76 | PFMH1117Z | METAL PART | |
| 77 | PFUS1341Z | LEAF SPRING | |
| 78 | PFDR1029Z | ROLLER,FEED PINCH | POM-HB |
| 79 | PFJS11Q27Z | CONNECTOR | |
| 80 | PFDJ1054Z | SPACER | POM-HB |
| 81 | PFDN1053Z | ROLLER | |
| 82 | PFDN1054Z | ROLLER,SEPARATION | |
| 83 | PFDE1174Z | LEVER/DOCUMENT | POM-HB |
| 84 | PFDJ1053Z | SPACER | POM-HB |
| 85 | PQUS10038Z | COIL SPRING | |
| 86 | PFDE1163Z | SPACER | POM-HB |
| 87 | PFDG1244Z | GEAR,IDLER FEED | POM-HB |
| 88 | PFDG1243Z | GEAR,FEED ROLLER | POM-HB |
| 89 | PFDG1245Z | GEAR | POM-HB |
| 90 | PFDE1173Z | ARM | POM-HB |
| 91 | XUC2FY | RETAINING RING | |
| 92 | PFHX1519Z | COVER | |
| 93 | PFHE1068Z | TAPE,MAGIC TAPE | |
| 94 | PFUS1342Y | LEAF SPRING | |
| 95 | PFDR1029Z | ROLLER | POM-HB |
| 96 | PFUS1350Z | COIL SPRING | |
| 97 | PFHR1289Z | CHASSIS | POM-HB |
| 98 | XPJ2A14VW | KEY-PIN | |
| 99 | PFHR1291Z | CAM | POM-HB |
| 100 | PFHR1292Z | PLASTIC PART | POM-HB |
| 101 | PFHR1290Z | CHASSIS | POM-HB |
| 102 | PFUS1349Z | COIL SPRING | |

## 12.1.4. UPPER PRINTER COVER SECTION

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| 120 | PFYCFLB751M | TRANSPARENT PLATE | |
| 121 | PFHR1293Z | SPACER,CIS | POM-HB |
| 122 | N2GABE000001 | PHOTO ELECTRIC TRANSDUCER | |
| 123 | PFUS1344Z | SPRING,CIS | |
| 124 | PFDC1001Y | GUIDE,CARRIAGE | PS-HB |
| 125 | PFJS04Q29Z | CONNECTOR | |
| 126 | PFJS10Q31Z | CONNECTOR | |
| 127 | PFLB1K002 | CORE | |
| 128 | PFJE1025Z | LEAD WIRE,FFC | |
| 129 | PFJE1026Z | LEAD WIRE,FFC | |
| 130 | PFDF1072Z | SHAFT,CARRIAGE | |
| 131 | PFDV1001Z | FLAT BELT,TIMING | |
| 132 | PFNPD031054C | WASHER | |
| 133 | PFDE1170Z | SPACER | POM-HB |
| 134 | PFDE1168Z | PULLEY | POM-HB |
| 135 | PFDG1238Z | GEAR,CARRIAGE | POM-HB |
| 136 | PFMH1103Z | METAL PART | |
| 137 | PFHX1399Z | COVER,MOTOR | |
| 138 | 35S1S15DGNE | DC MOTOR | |
| 139 | PFUV1045Z | COVER | PS-V0 |
| 140 | PFJS06Q30Y | CONNECTOR | |
| 141 | PFUV1046Z | COVER | PS-V0 |
| 142 | PFUS1345Z | SPRING,TENTION | |
| 143 | PFDE1169Z | PULLEY,TENTION | POM-HB |
| 144 | PFMH1104Z | METAL PART | |
| 145 | PFDE1167Z | METAL PART,F.B. LOCK | POM-HB |
| 146 | Not used | | |
| 147 | PFHX1566Z | COVER,SHEET | |

## 12.1.5. LOWER PRINTER COVER SECTION

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| 160 | PFDJ1042Z | SPACER,TRANSFER ROLLER | POM-HB |
| 161 | PFDS1003Y | ROLLER,TRANSFER | |
| 162 | PFDG1211Z | GEAR,TRANSFER ROLLER | POM-HB |
| 163 | PFMH1090Y | METAL PART | |
| 164 | PFUS1269Y | SPRING,TRANSFER ROLLER | |
| 165 | PFHX1518Z | PLASTIC PART | |
| 166 | PFUG1012X | GUIDE,MIDDLE | PS-HB |
| 167 | PFUS1347Z | SPRING,POP UP | |
| 168 | PFHR1301Z | COVER | PS-HB |
| 169 | PFUE1013Z | ARM,FLAT BED | PS-HB |
| 170 | PFHR1302Z | COVER | PS-HB |
| 171 | PFME1001Z | SPACER,DAMPER | POM-HB |
| 172 | PFHG1094Z | RUBBER PART,DAMPER | |
| 173 | PFQT1868Z | LABEL,CARRIAGE STOPPER | |
| 174 | PFHR1294Z1 | COVER,CARRIAGE | ABS-HB |
| 175 | PFHX1539Z | COVER,PROTECTION TONER | |
| 176 | PFMH1105Z | METAL PART,PIVOT LOCK | |
| 177 | PFKM1086Y1 | CABINET BODY,FLAT BED | PS-HB |
| 178 | PFBX1156Z2 | PUSH BUTTON,FUNCTION | |
| 179 | PFGE1005Z1 | PANEL,LIGHT | |
| 180 | PFBX1157Z1 | PUSH BUTTON,NAVI | |

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| 181 | PFBX1155Z2 | PUSH BUTTON,DIAL | ABS-HB |
| 182 | PFGG1200N2 | GRILLE,OPERATION | PS-HB |
| 183 | PFGP1207Z | PANEL,LCD | |
| 184 | PFGV1012Z | COVER/TEL.NO.CARD | |
| 185 | PFGD1047Z | CARD,TEL.NO. | |
| 186 | PFGG1074Z2 | GRILLE,SUB | PS-HB |
| 187 | PFGV1016Z | COVER,LCD PROTECT | |
| 188 | PFGB1003Z3 | BADGE | PS-HB |
| 189 | PFGX1015Y | PUSH BUTTON,STOP | |
| 190 | PFGX1013Y | PUSH BUTTON,COPY | |
| 191 | PFGX1014Y | PUSH BUTTON,FAX | |
| 192 | PFJS11Q32Y | CONNECTOR | |
| 193 | PFHP1105V | SHEET,CARRIAGE STOPPER | |

## 12.1.6. UPPER MAIN CABINET SECTION

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| 200 | PFKV1049Z1 | COVER,PICK UP ROLLER | PS-HB |
| 201 | PFZRFLB751M | ROLLER, PICKUP ASS'Y | |
| 202 | PFUG1011Z1 | GUIDE,PICK UP ROLLER | PS-HB |
| 203 | PFDJ1038Z | SPACER | POM-HB |
| 204 | PFUS1276Y | COIL SPRING | |
| 205 | PFHG1105Z | RUBBER PART | |
| 206 | PFKS1047Y1 | TRAY | PC+ABS-HB |
| 207 | L6FAKEEK0010 | MOTOR,FAN | |
| 208 | PFUE1010Y | AIR DUCT | |
| 209 | PFHX1538Z | COVER,SHEET | |
| 210 | PFDE1166Z | LEVER | POM-MB |
| 211 | PFMH1109Z | METAL PART,LOCK LEVER | |
| 212 | PFUS1360Z | SPRING,OPEN BUTTON | |
| 213 | PFDF1073Z | SHAFT,LOCK LEVER | |
| 214 | PFDE1165Z | LEVER | POM-HB |
| 215 | PFHG1127Z | RUBBER,SEPARATION PAPER | |
| 216 | PFHR1296X | GUIDE,SEPARATION PAPER | ABS-HB |
| 217 | PFHX1510Y | SPACER,SEPARATION PAPER | |
| 218 | PFUS1362X | SPRING,PAPER SEPARATION | |
| 219 | PFHX1545Z | COVER | |
| 220 | PFUS1279Y | SPRING,FEED EARTH | |
| 221 | PFKM1066Z1 | CABINET,H/S CRADLE UPPER | PS-HB |
| 222 | PFBH1015Z1 | BUTTON,HOOK | ABS-HB |
| 223 | PFKF1047Y1 | CABINET,H/S CRADLE LOWER | PS-HB |
| 224 | PFUS1323Z | SPRING,FUSER EARTH | |
| 225 | PF0G1004Z | GLASS | |
| 226 | PFBC1083Z1 | BUTTON,OPEN | ABS-HB |
| 227 | PFMH1107Z | METAL PART | |
| 228 | PFUS1359Y | SPRING,DOOR LOCK SPACER | |
| 229 | PFHR1300Y | SPACER,DOOR LOCK | POM-HB |
| 230 | XUC3FY | RETAINING RING | |
| 231 | PFDG1237X | GEAR,DAMPER | POM-HB |
| 232 | PFUS1346Y | COIL SPRING,DAMPER | |
| 233 | PFHR1288Y | DAMPER | POM-HB |
| 234 | XUC4FY | RETAINING RING | |
| 235 | PFMH1106Y | METAL PART | |

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| 236 | PFGT2242Z-M | NAME PLATE | |
| 237 | PFQT1871Z | LABEL,OPEN | |
| 238 | PFQT1741Z | LABEL,HOT CAUTION | |
| 239 | PFQT1971Z | LABEL,PAPER REMOVAL | |

### 12.1.7. LOWER MAIN CABINET SECTION

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| 250 | PFMD1058Z | METAL PART | |
| 251 | PFHA1005Z | RUBBER,LEG | |
| 252 | PFMH1108Z | METAL PART | |
| 253 | PFHG1119Z | SPACER | |
| 254 | PFQT1719Z | LABEL,LSU CAUTION | ⚠ |
| 255 | LPA1602K | LSU | ⚠ |
| 256 | PFJS05P06Z | CONNECTOR,5P | |
| 257 | PFJS08P05Z | CONNECTOR,8P | |
| 258 | PFJE1023Z | LEAD WIRE,FFC | |
| 259 | WLL20YB20M4M | CONNECTOR | |
| 260 | PQLB1E1 | INSULATOR | |
| 261 | PFJS10P11Z | CONNECTOR,10P | |
| 262 | PFJS14P09Z | CONNECTOR,14P | |
| 263 | PFJP03S04Z | AC INLET | S ⚠ |
| 264 | WLR18YK26CM4 | LEAD WIRE | S |
| 265 | PQMX10010Z | COVER | |
| 266 | PQHR945Z | BAND | |
| 267 | KR06TT251508 | INSULATOR | |
| 268 | PFJS02P02Z | CONNECTOR,2P | |
| 269 | PFHX1508Z | TORSION SPRING | |
| 270 | PFDE1149Y | LEVER,PAPER EMPTY | ABS-HB |
| 271 | PFUS1278Z | SPRING,PICK UP EARTH | |
| 272 | PFUS1268Z | SPRING,SPEAKER | |
| 273 | PFJS02P12Z | CONNECTOR,2P | |
| 274 | PFUS1320Z | COIL SPRING | |
| 275 | PFAS50P003Z | SPEAKER | S |
| 276 | WLL20YG20M3M | CONNECTOR | |
| 277 | PFHG1138Z | RUBBER PART | |
| 278 | PFKM1087X1 | CABINET BODY | |
| 279 | PFJS02P07Y | CONNECTOR,2P | |
| 280 | PFJS05P04Y | CONNECTOR,5P | |
| 281 | XWC4B | WASHER | |
| 282 | PFHX1553Z | COVER, EARTH SHEET | |
| 283 | PFUS1395Z | SPRING,SPEAKER EARTH | |

### 12.1.8. FUSER SECTION

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| 290 | PFDJ1037Z | SPACER,PRESSURE ROLLER | PPS-V0 |
| 291 | PFUS1263Z | COIL SPRING,PRESSURE | |
| 292 | PFDS1007Z | ROLLER,PRESSURE | |
| 293 | PFUS1264Z | COIL SPRING,EJECT | |
| 294 | PFDR1017Z | ROLLER,SUPPORT ROLLER | POM-MB |
| 295 | PFUA1032X | CHASSIS | PBT+ABS+ GF30%-V0 |
| 296 | A4DP7K000001 | HEATER,230 FUSER | ⚠ |
| 297 | PFDG1196Z | GEAR | PPS+GF30%-V0 |
| 298 | PFDJ1036Z | SPACER,HEAT ROLLER B | PPS-V0 |
| 299 | PFDS1004Z | ROLLER | |
| 300 | PFDJ1035Z | SPACER,HEAT ROLLER A | PPS-V0 |
| 301 | PFHX1442Y | COVER | |
| 302 | PFMH1085Z | METAL PART | |
| 303 | PFDE1142X | LEVER,EXIT SENSOR | PBT-V0 |
| 304 | PFDG1198Z | GEAR,EJECT IDLER | POM-HB |
| 305 | PFDG1197Z | GEAR,EJECT | POM-HB |
| 306 | PFUA1031W | CHASSIS | PBT+ABS+ GF30%-V0 |
| 307 | PFDR1016Z | ROLLER,EJECT | |
| 308 | PFTA1001Z | THERMOSTAT | ⚠ |
| 309 | PFHX1437Z | COVER | |
| 310 | PFJT1014Y | TERMINAL-TERMINAL PLATE | |
| 311 | PFAE001 | THERMAL FUSE | |
| 312 | PFJT1016Z | TERMINAL-TERMINAL PLATE | |
| 313 | PFRT003 | THERMISTOR | S |
| 314 | PFJT1015Z | TERMINAL-TERMINAL PLATE | |
| 315 | XWE4E8 | WASHER | |

## 12.1.9. MAIN FRAME SECTION

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| 330 | XUC2FY | RETAINING RING | |
| 331 | PFDG1201Z | GEAR,FEED ROLLER | |
| 332 | PFUS1325Z | COIL SPRING | |
| 333 | PFDJ1044Z | SPACER,FEED ROLLER | POM-HB |
| 334 | PFDN1047Z | ROLLER,FEED PAPER | |
| 335 | PFDF1005Z | SHAFT,SUPPORT ROLLER | |
| 336 | PQDR9685Y | ROLLER,SUPPORT | POM-HB |
| 337 | PFUS1396Z | COIL SPRING | |
| 338 | PFUA1027X | CHASSIS | PC+ABS+GF20% -V0 |
| 339 | PFQT1874V | LABEL ,DRUM INSTALL | |
| 340 | PFQT1788Z | LABEL ,LASER CAUTION | |
| 341 | PFUS1272Z | TORSION SPRING | |
| 342 | PFUE1001Z | PLASTIC PART | PS-FB |
| 343 | PFUS1274Z | TORSION SPRING | |
| 344 | PFUS1028Z | TORSION SPRING | |
| 345 | PF0M1004Z | MIRROR | |
| 346 | PFHR1299Z | COVER,DRUM UNIT | PS-HB |
| 347 | PFJS09P08Z | CONNECTOR | |
| 348 | PFUS1270Z | COIL SPRING | |
| 349 | PFUS1271Z | COIL SPRING | |

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| 350 | PFUS1273Z | COIL SPRING | |
| 351 | PFDE1148Z | LEVER,PAPER TOP SENSOR | ABS-HB |
| 352 | PFUE1002X | LEVER,COVER OPEN | POM-HB |
| 353 | PFUE1003W | LEVER,TONER EMPTY | POM-HB |
| 354 | PFMH1089Z | METAL PARTS,MIX ROLLER | |

### 12.1.10. MOTOR SECTION

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| 370 | PFDG1186Z | GEAR | POM-HB |
| 371 | PFDG1188Z | GEAR | POM-HB |
| 372 | PFDG1189Z | GEAR | POM-HB |
| 373 | PFDG1187Z | GEAR | POM-HB |
| 374 | PFDF1056Z | SHAFT | |
| 375 | PFDE1171X | LEVER | POM-HB |
| 376 | PFDE1139Y | LEVER | POM-HB |
| 377 | PFDG1177Z | GEAR | POM-HB |
| 378 | PFDG1176Z | GEAR | POM-HB |
| 379 | PFDG1175Z | GEAR | POM-HB |
| 380 | PFUS1259Y | COIL SPRING | |
| 381 | PFFP1003Z | PLUNGER | |
| 382 | PFDG1190Y | GEAR | POM-HB |
| 383 | PFDF1057Z | SHAFT | |
| 384 | PFDG1185Z | GEAR | POM-HB |
| 385 | PFNPD052080 | SPACER | |
| 386 | 55SPM25D4NC | DC MOTOR | |
| 387 | PFUS1260Y | LEAF SPRING | |
| 388 | PFUA1029X | CHASSIS | PBT+ABS-HB |
| 389 | PFDG1241Z | GEAR | POM-HB |
| 390 | PFDG1242Z | GEAR | POM-HB |
| 391 | XUC4FY | RETAINING RING | |
| 392 | PFDG1184Z | GEAR | POM-HB |
| 393 | PFDG1181Y | GEAR | POM-HB |
| 394 | PFDJ1031X | SPACER | |
| 395 | PFUS1262Z | COIL SPRING | |
| 396 | PFUA1028U | CHASSIS | PBT+ABS-HB |

## 12.2. ACCESSORIES AND PACKING MATERIALS

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| A1 | PFQW2097Z | LEAFLET | |
| A2 | PFZX1FL501M | TRAY | |
| A3 | PFZXFLB751M | TRAY | |
| A4 | PFJKFLB756Z | CD-ROM | |
| A5 | PFQX1948Z | INSTRUCTION BOOK | |
| A6 | PFJA02B004Z | CORD,TEL (FOR AUSTRALIA) | |
| A6 | PQJA87S | CORD,TEL (NEW ZEALAND) | |
| A7 | PQJA224Y | CORD,POWER | ⚠ |
| A8 | PQJA10126Z | CORD,CURL | |
| A9 | PFJXE1005Z | HANDLE/HANDSET | |
| P1 | PFPE1447Z-M | GIFT BOX | |
| P2 | PFPN1266Y | CUSHION | |
| P3 | PFPN1267Y | CUSHION | |
| P4 | PFPN1264Y | CUSHION | |
| P5 | PFPN1265Y | CUSHION | |
| P6 | PFPD1120Z | CUSHION | |
| P7 | XZB20X30A04 | PROTECTION COVER | |
| P8 | PFPH1041Z | PROTECTION COVER | |
| P9 | XZB32X45A04 | PROTECTION COVER | |
| P10 | PFPP1017Z | PROTECTION COVER | |
| P11 | PFPH1040Y | PROTECTION COVER | |

## 12.3. DIGITAL BOARD PARTS

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| PCB1 | PFWPFLB756AL | DIGITAL BOARD ASS'Y (RTL) | |
| | | (ICs) | |
| IC600 | PFVIT2003APS | IC | S |
| IC601 | PFVITVT245FT | IC | S |
| IC602 | PFVITVT245FT | IC | S |
| IC603 | C3ABPG000080 | IC | |
| IC604 | PFWPFLB756AL | It is impossible to replace IC604 by itself.<br>To replace IC604,replace the PCB1 assembly. | |
| IC605 | PFVINSL1087D | IC | S |
| IC606 | PFWIFLB756AL | IC(ROM) | |
| IC608 | C3ABPG000080 | IC | |
| IC609 | C1CB00001365 | IC | |
| IC610 | C1ZBZ0001924 | IC | |
| IC611 | PQVINJM2903M | IC | S |
| IC614 | C0JBAC000265 | IC | |
| IC615 | C0JBAD000093 | IC | |
| | | (TRANSISTORS) | |
| Q600 | 2SB1322 | TRANSISTOR(SI) | S |
| Q601 | 2SB1197K | TRANSISTOR(SI) | S |
| Q602 | 2SB1322 | TRANSISTOR(SI) | S |
| Q603 | 2SB1197K | TRANSISTOR(SI) | S |
| Q604 | 2SB1197K | TRANSISTOR(SI) | S |
| Q605 | PQVTDTC143E | TRANSISTOR(SI) | S |
| Q606 | PQVTDTC143E | TRANSISTOR(SI) | S |
| Q607 | PQVTDTC143E | TRANSISTOR(SI) | S |
| Q608 | PQVTDTC143E | TRANSISTOR(SI) | S |
| Q609 | PQVTDTC143E | TRANSISTOR(SI) | S |
| Q610 | 2SB1197K | TRANSISTOR(SI) | S |

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| Q611 | PQVTDTC143E | TRANSISTOR(SI) | S |
| Q612 | 2SB1197K | TRANSISTOR(SI) | S |
| Q613 | PQVTDTC143E | TRANSISTOR(SI) | S |
| Q614 | PQVTDTC143E | TRANSISTOR(SI) | S |
| Q615 | 2SB1197K | TRANSISTOR(SI) | S |
| Q616 | PQVTDTC143E | TRANSISTOR(SI) | S |
| Q617 | PQVTDTC143E | TRANSISTOR(SI) | S |
| Q618 | PQVTDTC143E | TRANSISTOR(SI) | S |
| Q619 | PQVTDTC143E | TRANSISTOR(SI) | S |
| Q620 | 2SD1819A | TRANSISTOR(SI) | S |
| Q621 | 2SD1819A | TRANSISTOR(SI) | S |
| Q622 | PQVTDTC143E | TRANSISTOR(SI) | S |
| Q623 | PQVTDTC143E | TRANSISTOR(SI) | S |
| Q624 | PQVTDTC143E | TRANSISTOR(SI) | S |
| Q625 | PQVTDTC143E | TRANSISTOR(SI) | S |
| Q626 | PQVTDTC143E | TRANSISTOR(SI) | S |
| Q627 | PQVTDTC143E | TRANSISTOR(SI) | S |
| Q628 | 2SB1197K | TRANSISTOR(SI) | S |
| Q629 | 2SB1197K | TRANSISTOR(SI) | S |
| Q630 | 2SB1197K | TRANSISTOR(SI) | S |
| Q631 | 2SD1819A | TRANSISTOR(SI) | S |
|  |  | (DIODES) |  |
| C654 | PQVDNNCD56DT | DIODE(SI) | S |
| D600 | MA7160 | DIODE(SI) |  |
| D601 | PQVDNNCD56DT | DIODE(SI) | S |
| D602 | MA141WK | DIODE(SI) |  |
| D603 | PQVDRLS73T | DIODE(SI) | S |
| D604 | PQVDNNCD56DT | DIODE(SI) | S |
| D606 | PFVDRMRLS245 | DIODE(SI) | S |
| D607 | PFVDRMRLS245 | DIODE(SI) | S |
| D608 | B0JAME000005 | DIODE(SI) |  |
| DA600 | PFVDNECD5R6G | DIODE(SI) |  |
| DA601 | PFVDNECD5R6G | DIODE(SI) |  |
| DA602 | PFVDNECD5R6G | DIODE(SI) |  |
| DA603 | PFVDNECD5R6G | DIODE(SI) |  |
| DA604 | B0ZBZ0000048 | DIODE(SI) |  |
|  |  | (BATTERY) |  |
| BAT600 | PFSU1004Z | LITHIUM BATTERY | S |
|  |  | (CAPACITORS) |  |
| C600 | ECUV1E104ZFV | 0.1 | S |
| C604 | ECEA1VKA101 | 100 | S |
| C605 | ECUV1H102KBV | 0.001 |  |
| C606 | ECUV1H102KBV | 0.001 |  |
| C607 | ECUV1H102KBV | 0.001 |  |
| C608 | ECUV1H102KBV | 0.001 |  |
| C609 | ECUV1H102KBV | 0.001 |  |
| C610 | ECUV1H102KBV | 0.001 |  |
| C611 | ECUV1H102KBV | 0.001 |  |
| C612 | ECUV1H102KBV | 0.001 |  |
| C613 | ECUV1H102KBV | 0.001 |  |
| C614 | ECUV1H102KBV | 0.001 |  |
| C616 | ECUV1H102KBV | 0.001 |  |
| C617 | ECUV1H102KBV | 0.001 |  |
| C618 | ECUV1H102KBV | 0.001 |  |

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| C619 | ECUV1H102KBV | 0.001 | |
| C620 | ECUV1H102KBV | 0.001 | |
| C621 | ECUV1H102KBV | 0.001 | |
| C622 | ECUV1H102KBV | 0.001 | |
| C623 | ECUV1H102KBV | 0.001 | |
| C624 | ECUV1C104ZFV | 0.1 | |
| C625 | ECUV1C104ZFV | 0.1 | |
| C626 | ECEA1HU100 | 10 | S |
| C627 | ECUV1E104ZFV | 0.1 | S |
| C628 | ECUV1H102KBV | 0.001 | |
| C629 | ECUV1H102KBV | 0.001 | |
| C630 | ECUV1H102KBV | 0.001 | |
| C631 | ECUV1H102KBV | 0.001 | |
| C632 | ECUV1H102KBV | 0.001 | |
| C633 | ECUV1H102KBV | 0.001 | |
| C634 | ECUV1C104ZFV | 0.1 | |
| C635 | ECUV1H270JCV | 27p | |
| C636 | ECUV1C104ZFV | 0.1 | |
| C637 | ECUV1C104ZFV | 0.1 | |
| C638 | ECUV1C104ZFV | 0.1 | |
| C639 | ECUV1C334ZFV | 0.33 | |
| C640 | ECUV1H102KBV | 0.001 | |
| C642 | ECUV1A105ZFV | 1 | |
| C643 | ECUV1C334ZFV | 0.33 | |
| C647 | ECUV1H270JCV | 27p | |
| C648 | ECUV1C104ZFV | 0.1 | |
| C649 | ECUV1C104ZFV | 0.1 | |
| C650 | ECUV1H270JCV | 27p | |
| C652 | ECUV1C104ZFV | 0.1 | |
| C653 | ECEA0JK221 | 220 | S |
| C655 | ECUV1C104KBV | 0.1 | |
| C656 | ECUV1C334ZFV | 0.33 | |
| C657 | ECUV1C104KBV | 0.1 | |
| C658 | ECUV1C104KBV | 0.1 | |
| C659 | ECUV1C104KBV | 0.1 | |
| C660 | ECUV1C104ZFV | 0.1 | |
| C661 | ECUV1C104ZFV | 0.1 | |
| C662 | ECUV1C104ZFV | 0.1 | |
| C663 | ECEA0JKS101 | 100 | S |
| C664 | ECUV1H150JCV | 15P | |
| C665 | ECUV1H220JCV | 22P | |
| C666 | ECUV1C104ZFV | 0.1 | |
| C667 | ECUV1H220JCV | 22P | |
| C671 | ECUV1C104ZFV | 0.1 | |
| C672 | ECUV1H270JCV | 27P | |
| C673 | ECUV1C104ZFV | 0.1 | |
| C674 | ECUV1C104ZFV | 0.1 | |
| C675 | ECUV1C104ZFV | 0.1 | |
| C676 | ECUV1C104ZFV | 0.1 | |
| C678 | ECUV1H180JCV | 18p | |
| C681 | ECUV1H150JCV | 15p | |
| C682 | ECUV1H150JCV | 15p | |
| C684 | ECUV1H150JCV | 15p | |
| C685 | ECUV1H150JCV | 15p | |

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| C686 | ECUV1H150JCV | 15p | |
| C687 | ECUV1H270JCV | 27p | |
| C688 | ECUV1C104ZFV | 0.1 | |
| C689 | ECUV1C104ZFV | 0.1 | |
| C690 | ECUV1H270JCV | 27p | |
| C691 | ECUV1C334ZFV | 0.33 | |
| C692 | ECUV1C104ZFV | 0.1 | |
| C693 | ECUV1H331JCV | 330p | S |
| C694 | ECUV1C104ZFV | 0.1 | |
| C695 | ECUV1C104ZFV | 0.1 | |
| C698 | ECUV1C104ZFV | 0.1 | |
| C699 | ECUV1C104ZFV | 0.1 | |
| C700 | ECUV1C104ZFV | 0.1 | |
| C701 | ECUV1C104ZFV | 0.1 | |
| C702 | ECEA1HU100 | 10 | S |
| C703 | ECEA1HU100 | 10 | S |
| C704 | ECUV1C104ZFV | 0.1 | |
| C705 | ECUV1C104ZFV | 0.1 | |
| C707 | ECUV1C104ZFV | 0.1 | |
| C708 | ECUV1H102KBV | 0.001 | |
| C709 | ECUV1C104ZFV | 0.1 | |
| C710 | ECUV1C104ZFV | 0.1 | |
| C711 | ECEA1HU100 | 10 | S |
| C712 | ECUV1C104ZFV | 0.1 | |
| C713 | ECEA1HU100 | 10 | S |
| C714 | ECUV1C104ZFV | 0.1 | |
| C715 | ECUV1C104ZFV | 0.1 | |
| C716 | ECUV1C104ZFV | 0.1 | |
| C717 | ECUV1C104ZFV | 0.1 | |
| C718 | ECUV1C104ZFV | 0.1 | |
| C719 | ECUV1C104ZFV | 0.1 | |
| C720 | ECUV1C104ZFV | 0.1 | |
| C721 | ECUV1H103KBV | 0.01 | |
| C722 | ECUV1H102KBV | 0.001 | |
| C723 | ECUV1A224KBV | 0.22 | |
| C738 | ECUV1C104ZFV | 0.1 | |
| C739 | ECUV1C104ZFV | 0.1 | |
| C740 | ECUV1C104ZFV | 0.1 | |
| C741 | ECUV1H103KBV | 0.01 | |
| C742 | ECUV1H102KBV | 0.001 | |
| C743 | ECUV1H102KBV | 0.001 | |
| C744 | ECUV1H821KBV | 820p | |
| C745 | ECEA1AU101 | 100 | S |
| C747 | ECUV1C104ZFV | 0.1 | |
| C750 | ECUV1C104ZFV | 0.1 | |
| C751 | ECUV1C104ZFV | 0.1 | |
| C752 | ECEA1VKA101 | 100 | S |
| C753 | ECEA1AU101 | 100 | S |
| C754 | ECUV1C104ZFV | 0.1 | |
| C755 | ECUV1E104ZFV | 0.1 | S |
| C756 | ECUV1E104ZFV | 0.1 | S |
| C757 | ECEA1VKA101 | 100 | S |
| C758 | ECUV1C104ZFV | 0.1 | |
| C759 | ECUV1C104ZFV | 0.1 | |

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| C760 | ECUV1C104ZFV | 0.1 | |
| C761 | ECUV1C104ZFV | 0.1 | |
| C762 | ECUV1A105ZFV | 1 | |
| C763 | ECUV1C104ZFV | 0.1 | |
| C764 | ECUV1H101JCV | 100p | |
| C765 | ECUV1H101JCV | 100p | |
| C766 | ECUV1H101JCV | 100p | |
| C767 | ECUV1H101JCV | 100p | |
| C768 | ECUV1H101JCV | 100p | |
| C769 | ECUV1H180JCV | 18p | |
| C772 | ECUV1C104ZFV | 0.1 | |
| C774 | ECUV1C104ZFV | 0.1 | |
| | | (CONNECOTS) | |
| CN600 | K1FB136B0031 | CONNECTOR,10P | |
| CN601 | PQJP6G30Y | CONNECTOR,6P | S |
| CN602 | K1AB110B0001 | CONNECTOR | |
| CN603 | PQJP3G30Z | CONNECTOR,3P | S |
| CN605 | PQJP14G30Y | CONNECTOR,14P | |
| CN606 | PQJP4G30Y | CONNECTOR,4P | S |
| CN607 | K1KB04B00036 | CONNECTOR,4P | |
| CN608 | PQJP10G30Y | CONNECTOR,10P | S |
| CN609 | PQJP02G100Z | CONNECTOR,2P | |
| CN610 | PQJP5G30Y | CONNECTOR,5P | S |
| CN611 | PQJP11G30Y | CONNECTOR,11P | S |
| CN612 | PQJP05G100Z | CONNECTOR,5P | |
| CN613 | PQJP8G30Y | CONNECTOR,8P | S |
| CN614 | PQJP9G30Y | CONNECTOR,9P | S |
| CN615 | PQJP10G30Y | CONNECTOR,10P | S |
| CN616 | PQJS28X59Z | CONNECTOR,28p | |
| | | (FUSES) | |
| F600 | PFRB002122KZ | FUSE | S |
| F601 | PFRB002122KZ | FUSE | S |
| F602 | PFRB0031063 | FUSE | |
| F603 | PFRB0031063 | FUSE | |
| F604 | PFRB0031063 | FUSE | |
| F605 | PFRB0031200 | FUSE | S |
| F606 | PFRB0031031T | FUSE | S |
| | | (COILS) | |
| L621 | PQLQR2BT | COIL | S |
| L628 | PQLQR2BT | COIL | S |
| L632 | PQLQR2BT | COIL | S |
| L638 | PQLQR1ET | COIL | S |
| L649 | PQLQR2BT | COIL | S |
| L669 | PQLQR2BT | COIL | S |
| L670 | PQLQR2BT | COIL | S |
| L671 | PQLQR2BT | COIL | S |
| L672 | PQLQR2BT | COIL | S |
| R667 | PQLQR2BT | COIL | S |
| R790 | PQLQR2BT | COIL | S |
| | | (COMPONENT PARTS) | |
| L643 | EXCELDR35 | COMPONENTS PART | |
| L644 | EXCELDR35 | COMPONENTS PART | |
| | | (CERAMIC FILTERS) | |
| L600 | PFVF1B601ST | CERAMIC FILTER | S |

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| L601 | PFVF1B601ST | CERAMIC FILTER | S |
| L602 | PFVF1B601ST | CERAMIC FILTER | S |
| L603 | PFVF1B601ST | CERAMIC FILTER | S |
| L604 | PFVF1B601ST | CERAMIC FILTER | S |
| L605 | PFVF1B601ST | CERAMIC FILTER | S |
| L606 | PFVF1B601ST | CERAMIC FILTER | S |
| L607 | PFVF1B601ST | CERAMIC FILTER | S |
| L608 | PFVF1B601ST | CERAMIC FILTER | S |
| L609 | PFVF1B601ST | CERAMIC FILTER | S |
| L610 | PFVF1B601ST | CERAMIC FILTER | S |
| L611 | PFVF1B601ST | CERAMIC FILTER | S |
| L612 | PFVF1B601ST | CERAMIC FILTER | S |
| L613 | PFVF1B601ST | CERAMIC FILTER | S |
| L614 | PFVF1B601ST | CERAMIC FILTER | S |
| L615 | PFVF1B601ST | CERAMIC FILTER | S |
| L616 | PFVF1B601ST | CERAMIC FILTER | S |
| L617 | PFVF1B601ST | CERAMIC FILTER | S |
| L618 | PFVF1B601ST | CERAMIC FILTER | S |
| L619 | PFVF1B601ST | CERAMIC FILTER | S |
| L620 | PFVF1B601ST | CERAMIC FILTER | S |
| L622 | PFVF1B601ST | CERAMIC FILTER | S |
| L623 | PFVF1B601ST | CERAMIC FILTER | S |
| L624 | PFVF1B601ST | CERAMIC FILTER | S |
| L625 | PFVF1B601ST | CERAMIC FILTER | S |
| L626 | PFVF1B252SDT | CERAMIC FILTER | S |
| L627 | PFVF1B252SDT | CERAMIC FILTER | S |
| L639 | PFVF1B601ST | CERAMIC FILTER | S |
| L640 | PFVF1B252SDT | CERAMIC FILTER | S |
| L641 | PFVF1B252SDT | CERAMIC FILTER | S |
| L642 | PFVF1B252SDT | CERAMIC FILTER | S |
| L648 | PFVF1B252SDT | CERAMIC FILTER | S |
| L654 | PFVF1B252SDT | CERAMIC FILTER | S |
| L655 | PFVF1B252SDT | CERAMIC FILTER | S |
| L656 | PFVF1B252SDT | CERAMIC FILTER | S |
| L657 | PFVF1B252SDT | CERAMIC FILTER | S |
| L658 | PFVF1B252SDT | CERAMIC FILTER | S |
| L659 | PFVF1B252SDT | CERAMIC FILTER | S |
| L660 | PFVF1B252SDT | CERAMIC FILTER | S |
| L661 | PFVF1B252SDT | CERAMIC FILTER | S |
| L662 | PFVF1B252SDT | CERAMIC FILTER | S |
| L663 | PFVF1B252SDT | CERAMIC FILTER | S |
| L664 | PFVF1B252SDT | CERAMIC FILTER | S |
| L665 | PFVF1B252SDT | CERAMIC FILTER | S |
| L666 | PFVF1B252SDT | CERAMIC FILTER | S |
| L667 | PFVF1B252SDT | CERAMIC FILTER | S |
| L673 | PFVF1B252SDT | CERAMIC FILTER | S |
| L674 | PFVF1B252SDT | CERAMIC FILTER | S |
| L678 | PFVF1B252SDT | CERAMIC FILTER | S |
| L679 | PFVF1B252SDT | CERAMIC FILTER | S |
| L680 | PFVF1B252SDT | CERAMIC FILTER | S |
| L681 | PFVF1B252SDT | CERAMIC FILTER | S |
| L682 | PFVF1B252SDT | CERAMIC FILTER | S |
| L683 | PFVF1B252SDT | CERAMIC FILTER | S |
| L684 | PFVF1B252SDT | CERAMIC FILTER | S |

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| L685 | PFVF1B252SDT | CERAMIC FILTER | S |
| L686 | PFVF1B252SDT | CERAMIC FILTER | S |
| R743 | PFVF1B252SDT | CERAMIC FILTER | S |
| R744 | PFVF1B252SDT | CERAMIC FILTER | S |
|  |  | (RESISTORS) |  |
| L630 | PQ4R10XJ000 | 0 | S |
| L634 | PQ4R10XJ000 | 0 | S |
| L636 | ERJ3GEY0R00 | 0 |  |
| L637 | ERJ3GEYJ4R7 | 4.7 |  |
| L645 | ERJ3GEY0R00 | 0 |  |
| L646 | ERJ3GEY0R00 | 0 |  |
| L647 | ERJ3GEY0R00 | 0 |  |
| L650 | ERJ3GEYJ471 | 470 |  |
| L651 | ERJ3GEYJ471 | 470 |  |
| L652 | ERJ3GEYJ471 | 470 |  |
| L668 | PQ4R10XJ000 | 0 | S |
| R600 | PQ4R10XJ000 | 0 | S |
| R601 | ERDS1VJ152 | 1.5k | S |
| R602 | ERJ3GEYJ221 | 220 |  |
| R603 | ERJ3GEYJ102 | 1k |  |
| R604 | ERDS1VJ152 | 1.5k | S |
| R605 | ERJ3GEYJ102 | 1k |  |
| R607 | ERJ3GEYJ103 | 10k |  |
| R611 | ERJ3GEYJ103 | 10k |  |
| R612 | ERJ3GEYJ101 | 100 |  |
| R613 | ERJ14YJ4R7 | 4.7 |  |
| R614 | ERJ3GEYJ332 | 3.3k |  |
| R615 | ERJ3GEYJ222 | 2.2k |  |
| R616 | ERJ3GEYJ472 | 4.7k |  |
| R617 | ERJ14YJ472 | 4.7k |  |
| R618 | ERJ14YJ472 | 4.7k |  |
| R619 | ERJ3GEYJ102 | 1k |  |
| R620 | ERJ3GEYJ562 | 5.6k |  |
| R621 | ERJ3GEYJ563 | 56k |  |
| R623 | ERJ3GEYJ103 | 10k |  |
| R624 | ERJ3GEYJ103 | 10k |  |
| R625 | ERJ3GEYJ101 | 100 |  |
| R626 | ERJ3GEYJ562 | 5.6k |  |
| R627 | ERJ3GEYJ562 | 5.6k |  |
| R628 | ERJ3GEYJ562 | 5.6k |  |
| R629 | ERJ3GEYJ562 | 5.6k |  |
| R630 | ERJ3GEYJ563 | 56k |  |
| R631 | ERJ3GEYJ563 | 56k |  |
| R632 | ERJ3GEYJ332 | 3.3k |  |
| R633 | ERJ3GEYJ222 | 2.2k |  |
| R634 | ERJ3GEYJ472 | 4.7k |  |
| R635 | ERJ3GEYJ562 | 5.6k |  |
| R636 | ERJ3GEYJ562 | 5.6k |  |
| R637 | ERJ3GEYJ563 | 56k |  |
| R638 | ERJ3GEYJ563 | 56k |  |
| R639 | ERJ3GEYJ221 | 220 |  |
| R640 | ERJ3GEYJ152 | 1.5k |  |
| R641 | ERJ3GEYJ104 | 100k |  |
| R642 | ERJ3GEYJ152 | 1.5k |  |

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| R643 | ERJ3GEYJ332 | 3.3k | |
| R644 | ERJ3GEYJ822 | 8.2k | |
| R645 | ERJ3GEYJ103 | 10k | |
| R646 | ERJ3GEYJ222 | 2.2k | |
| R647 | ERJ3GEYJ103 | 10k | |
| R648 | ERJ3GEY0R00 | 0 | |
| R649 | ERJ3GEYJ184 | 180k | |
| R651 | ERJ3GEYJ270 | 27 | |
| R652 | ERJ3GEYJ270 | 27 | |
| R653 | ERJ3GEYJ563 | 56k | |
| R654 | ERJ3GEYJ222 | 2.2k | |
| R655 | ERJ3GEYJ472 | 4.7k | |
| R657 | ERJ3GEYJ220 | 22 | |
| R658 | ERJ3GEYJ122 | 1.2k | |
| R659 | ERJ3GEYJ221 | 220 | |
| R660 | ERJ3GEYJ101 | 100 | |
| R661 | ERJ3GEYJ105 | 1M | |
| R662 | ERJ3GEYJ101 | 100 | |
| R663 | ERJ3GEYJ475 | 4.7M | |
| R665 | ERJ3GEYJ103 | 10k | |
| R666 | ERJ3GEY0R00 | 0 | |
| R669 | PQ4R10XJ000 | 0 | S |
| R671 | ERJ3GEY0R00 | 0 | |
| R672 | ERJ3GEY0R00 | 0 | |
| R673 | ERJ3GEY0R00 | 0 | |
| R675 | ERJ3GEYJ220 | 22 | |
| R676 | ERJ3GEYJ220 | 22 | |
| R677 | ERJ3GEYJ103 | 10k | |
| R678 | ERJ3GEYJ103 | 10k | |
| R679 | ERJ3GEYJ103 | 10k | |
| R680 | ERJ3GEYJ103 | 10k | |
| R681 | ERJ3GEYJ103 | 10k | |
| R682 | ERJ3GEY0R00 | 0 | |
| R683 | ERJ3GEY0R00 | 0 | |
| R684 | ERJ3GEY0R00 | 0 | |
| R685 | ERJ3GEY0R00 | 0 | |
| R686 | ERJ3GEYJ392 | 3.9k | |
| R687 | ERJ3GEYJ101 | 100 | |
| R688 | ERJ3GEYJ331 | 330 | |
| R689 | ERJ14YJ472 | 4.7k | |
| R690 | ERJ3GEYJ103 | 10k | |
| R691 | ERJ3EKF6801 | 6.8k | |
| R693 | ERJ3GEYJ562 | 5.6k | |
| R694 | ERJ3GEYJ563 | 56k | |
| R700 | ERJ3EKF1802 | 18k | |
| R701 | ERJ3EKF4701 | 4.7k | |
| R702 | ERJ3GEYJ103 | 10k | |
| R703 | ERJ3GEYJ103 | 10k | |
| R704 | ERJ3GEYJ103 | 10k | |
| R705 | ERJ3GEYJ104 | 100k | |
| R706 | ERJ3GEYJ332 | 3.3k | |
| R707 | ERJ3GEYJ562 | 5.6k | |
| R711 | ERJ3GEYJ102 | 1k | |
| R712 | ERJ3GEYJ101 | 100 | |

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| R713 | ERJ3GEYJ101 | 100 | |
| R714 | ERJ3GEYJ101 | 100 | |
| R715 | ERJ3GEYJ101 | 100 | |
| R716 | ERJ3GEYJ101 | 100 | |
| R719 | ERJ3GEYJ103 | 10k | |
| R720 | ERJ3GEYJ472 | 4.7k | |
| R721 | ERJ3GEYJ272 | 2.7k | |
| R722 | ERJ3GEYJ393 | 39k | |
| R723 | ERJ3GEYJ101 | 100 | |
| R724 | ERJ3GEYJ103 | 10k | |
| R725 | ERJ3GEYJ102 | 1k | |
| R726 | ERJ3GEYJ103 | 10k | |
| R727 | ERJ3GEYJ103 | 10k | |
| R728 | ERJ3GEYJ103 | 10k | |
| R731 | ERJ3GEY0R00 | 0 | |
| R732 | ERJ3GEY0R00 | 0 | |
| R733 | ERJ3GEYJ103 | 10k | |
| R734 | ERJ3GEYJ101 | 100 | |
| R735 | ERJ3GEYJ101 | 100 | |
| R736 | ERJ3GEYJ101 | 100 | |
| R737 | ERJ3GEYJ333 | 33k | |
| R738 | ERJ3GEYJ562 | 5.6k | |
| R739 | ERJ3GEYJ103 | 10k | |
| R740 | ERJ3GEY0R00 | 0 | |
| R748 | ERJ3GEYJ101 | 100 | |
| R749 | ERJ3GEYJ101 | 100 | |
| R750 | ERJ3GEYJ101 | 100 | |
| R754 | ERJ3GEYJ103 | 10k | |
| R755 | ERJ3GEYJ103 | 10k | |
| R756 | ERJ3GEYJ103 | 10k | |
| R757 | ERJ3GEYJ103 | 10k | |
| R758 | ERJ3GEYJ103 | 10k | |
| R759 | ERJ3GEYJ103 | 10k | |
| R760 | ERJ3GEYJ563 | 56k | |
| R761 | ERJ3GEYJ563 | 56k | |
| R762 | PQ4R10XJ000 | 0 | S |
| R763 | ERJ3GEYJ220 | 22 | |
| R764 | ERJ3GEYJ103 | 10k | |
| R765 | ERJ3GEYJ102 | 1k | |
| R766 | ERJ3GEYJ103 | 10k | |
| R768 | ERJ3GEYJ103 | 10k | |
| R769 | ERX1SJ2R2 | 2.2 | |
| R770 | ERJ3GEYJ222 | 2.2k | |
| R771 | ERJ3GEYJ472 | 4.7k | |
| R772 | ERJ3GEYJ222 | 2.2k | |
| R773 | ERJ3GEYJ472 | 4.7k | |
| R774 | ERJ14YJ472 | 4.7k | |
| R775 | ERJ3GEYJ103 | 10k | |
| R776 | ERJ3GEYF393 | 39k | S |
| R777 | ERJ3GEYJ103 | 10k | |
| R778 | ERG2SJ271 | 270 | |
| R779 | ERJ3GEYJ220 | 22 | |
| R780 | ERJ3GEYJ220 | 22 | |
| R781 | ERJ3GEYJ220 | 22 | |

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| R782 | ERJ3GEYJ220 | 22 | |
| R783 | ERJ3GEYJ220 | 22 | |
| R784 | ERJ3GEYJ220 | 22 | |
| R785 | ERJ3GEYJ220 | 22 | |
| R786 | ERJ3GEYJ220 | 22 | |
| R787 | ERJ3GEYJ220 | 22 | |
| R788 | PQ4R10XJ000 | 0 | S |
| R791 | ERJ3GEYJ103 | 10k | |
| R792 | ERJ3GEYJ103 | 10k | |
| R796 | PQ4R10XJ000 | 0 | S |
| R799 | PQ4R10XJ000 | 0 | S |
| R800 | ERJ3GEY0R00 | 0 | |
| R801 | ERJ3GEY0R00 | 0 | |
| R802 | ERJ3GEYJ103 | 10k | |
| RA600 | D1H81024A010 | 1k | |
| RA601 | D1H81024A010 | 1k | |
| RA602 | D1H81024A010 | 1k | |
| RA603 | D1H81024A010 | 1k | |
| RA604 | D1H82204A010 | 22 | |
| RA610 | D1H82204A010 | 22 | |
| RA612 | D1H81034A010 | 10k | |
| RA613 | D1H81034A010 | 10k | |
| RA614 | D1H81034A010 | 10k | |
| RA617 | D1H81034A010 | 10k | |
| RA622 | D1H82204A010 | 22 | |
| RA623 | D1H82204A010 | 22 | |
| RA624 | D1H82204A010 | 22 | |
| RA625 | D1H82204A010 | 22 | |
| RA626 | D1H82204A010 | 22 | |
| | | (COMPONENTS PARTS) | |
| RA605 | PFXBV8V470JV | RESISTOR ARRAY | S |
| RA606 | PFXBV8V470JV | RESISTOR ARRAY | S |
| RA607 | PFXBV8V470JV | RESISTOR ARRAY | S |
| RA608 | PFXBV8V470JV | RESISTOR ARRAY | S |
| RA618 | PFXBV8V470JV | RESISTOR ARRAY | S |
| RA619 | PFXBV8V470JV | RESISTOR ARRAY | S |
| RA620 | PFXBV8V470JV | RESISTOR ARRAY | S |
| RA621 | PFXBV8V470JV | RESISTOR ARRAY | S |
| | | (CRYSTAL OSCILLATORS) | |
| X600 | H0J282500005 | CRYSTAL OSCILLATOR | |
| X601 | PFVCCFS32Z | CRYSTAL OSCILLATOR | S |

## 12.4. ANALOG BOARD PARTS

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| PCB2 | PFLP1377SA-A | ANALOG BOARD ASS'Y (RTL) | ⚠ |
|  |  | (ICs) |  |
| IC201 | AN6384SB | IC |  |
| IC202 | C1BB00000101 | IC |  |
| IC203 | PQVIMC34119D | IC | S |
| IC204 | PQVINJM082BM | IC | S |
| IC205 | PQVINJM082BM | IC | S |
| IC206 | PQVINJM082BM | IC | S |
| IC207 | PQVINJM082BM | IC | S |
| IC208 | AN6123MS | IC |  |
| IC209 | PQVINJM082BM | IC | S |
|  |  | (TRANSISTORS) |  |
| Q201 | 2SD1921Q | TRANSISTOR(SI) | S |
| Q202 | 2SC2235 | TRANSISTOR(SI) | S |
| Q203 | 2SB1218A | TRANSISTOR(SI) |  |
| Q204 | 2SD1819A | TRANSISTOR(SI) | S |
| Q205 | PQVTDTC143E | TRANSISTOR(SI) | S |
| Q206 | 2SD1819A | TRANSISTOR(SI) | S |
| Q207 | 2SD1819A | TRANSISTOR(SI) | S |
| Q208 | 2SA1627 | TRANSISTOR(SI) | S |
| Q210 | PQVTDTC143E | TRANSISTOR(SI) | S |
| Q211 | 2SA1627 | TRANSISTOR(SI) | S |
| Q213 | PQVTDTC143E | TRANSISTOR(SI) | S |
| Q214 | 2SD1819A | TRANSISTOR(SI) | S |
|  |  | (DIODES) |  |
| D201 | MA4056 | DIODE(SI) |  |
| D202 | MA4056 | DIODE(SI) |  |
| D203 | MA4056 | DIODE(SI) |  |
| D204 | 1SS133 | DIODE(SI) | S |
| D205 | 1SS133 | DIODE(SI) | S |
| D206 | 1SS133 | DIODE(SI) | S |
| D208 | 1SS133 | DIODE(SI) | S |
| D209 | PFVDDGS1ZB60 | DIODE(SI) |  |
| D211 | MA4056 | DIODE(SI) |  |
| D212 | MA4056 | DIODE(SI) |  |
| DA201 | MA143 | DIODE(SI) |  |
|  |  | (CONNECTORS & JACKS) |  |
| CN201 | PQJP02G100Z | CONNECTOR |  |
| CN202 | PQJS28X59Z | CONNECTOR |  |
| CN203 | PQJJ1TC5Z | JACK | S |
| CN204 | PQJJ1TB18Z | JACK | S |
| CN205 | PQJJ1TC5Z | JACK | S |
|  |  | (COILS) |  |
| FL221 | PFLE126 | COIL | S |
| L229 | PQLQXD152K | COIL | S |
| L230 | PQLQXD152K | COIL | S |
| L235 | PQLQR1E32A07 | COIL | S |
| L236 | PQLQR1E32A07 | COIL | S |
| L238 | PQLQR1E32A07 | COIL | S |
| L239 | PQLQR1E32A07 | COIL | S |
|  |  | (CERAMIC FILTERS) |  |
| FL216 | PQVFN3C223R | CERAMIC FILTER |  |
| FL217 | PQVFN3C223R | CERAMIC FILTER |  |
| FL218 | PQVFN3C223R | CERAMIC FILTER |  |

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| FL219 | PQVFN3C223R | CERAMIC FILTER | |
| FL223 | PQVFN3C223R | CERAMIC FILTER | |
| J229 | PFVF1B252SDT | CERAMIC FILTER | S |
| J230 | PFVF1B252SDT | CERAMIC FILTER | S |
| J378 | PFVF1B252SDT | CERAMIC FILTER | S |
| J385 | PFVF1B252SDT | CERAMIC FILTER | S |
| L202 | PFVF1B252SDT | CERAMIC FILTER | S |
| L203 | PFVF1B252SDT | CERAMIC FILTER | S |
| L205 | PFVF1B252SDT | CERAMIC FILTER | S |
| L206 | PFVF1B252SDT | CERAMIC FILTER | S |
| L207 | PFVF1B252SDT | CERAMIC FILTER | S |
| L213 | PFVF1B252SDT | CERAMIC FILTER | S |
| L232 | PFVF1B252SDT | CERAMIC FILTER | S |
| L233 | PFVF1B252SDT | CERAMIC FILTER | S |
| L234 | PFVF1B252SDT | CERAMIC FILTER | S |
| L237 | PFVF1B252SDT | CERAMIC FILTER | S |
| L241 | PFVF1B252SDT | CERAMIC FILTER | S |
| L242 | PFVF1B252SDT | CERAMIC FILTER | S |
| L243 | PFVF1B252SDT | CERAMIC FILTER | S |
| L244 | PFVF1B252SDT | CERAMIC FILTER | S |
| L249 | PFVF1B252SDT | CERAMIC FILTER | S |
| L250 | PFVF1B252SDT | CERAMIC FILTER | S |
| L251 | PFVF1B252SDT | CERAMIC FILTER | S |
| L253 | PFVF1B252SDT | CERAMIC FILTER | S |
| L254 | PFVF1B252SDT | CERAMIC FILTER | S |
| L255 | PFVF1B252SDT | CERAMIC FILTER | S |
| L256 | PFVF1B252SDT | CERAMIC FILTER | S |
| L257 | PFVF1B252SDT | CERAMIC FILTER | S |
| L259 | PFVF1B252SDT | CERAMIC FILTER | S |
| L260 | PFVF1B252SDT | CERAMIC FILTER | S |
| L261 | PFVF1B252SDT | CERAMIC FILTER | S |
| L264 | PFVF1B252SDT | CERAMIC FILTER | S |
| L265 | PFVF1B252SDT | CERAMIC FILTER | S |
| L266 | PFVF1B252SDT | CERAMIC FILTER | S |
| L267 | PFVF1B252SDT | CERAMIC FILTER | S |
| L268 | PFVF1B252SDT | CERAMIC FILTER | S |
| L269 | PFVF1B252SDT | CERAMIC FILTER | S |
| L270 | PFVF1B252SDT | CERAMIC FILTER | S |
| L271 | PFVF1B252SDT | CERAMIC FILTER | S |
| L272 | PFVF1B252SDT | CERAMIC FILTER | S |
| L273 | PFVF1B252SDT | CERAMIC FILTER | S |
| R217 | PFVF1B252SDT | CERAMIC FILTER | S |
| R244 | PFVF1B252SDT | CERAMIC FILTER | S |
| R245 | PFVF1B252SDT | CERAMIC FILTER | S |
| R247 | PFVF1B252SDT | CERAMIC FILTER | S |
| R252 | PFVF1B252SDT | CERAMIC FILTER | S |
| R255 | PFVF1B252SDT | CERAMIC FILTER | S |
| R259 | PFVF1B252SDT | CERAMIC FILTER | S |
| R265 | PFVF1B252SDT | CERAMIC FILTER | S |
| R271 | PFVF1B252SDT | CERAMIC FILTER | S |
| R274 | PFVF1B252SDT | CERAMIC FILTER | S |
| R277 | PFVF1B252SDT | CERAMIC FILTER | S |
| R278 | PFVF1B252SDT | CERAMIC FILTER | S |
| R299 | PFVF1B252SDT | CERAMIC FILTER | S |

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| R308 | PFVF1B252SDT | CERAMIC FILTER | S |
| R313 | PFVF1B252SDT | CERAMIC FILTER | S |
|  |  | (CAPACITORS) |  |
| C201 | ECUV1H220JCV | 22p |  |
| C203 | ECUV1H681JCV | 680p | S |
| C204 | ECUV1H101JCV | 100p |  |
| C205 | ECUV1H101JCV | 100p |  |
| C206 | ECUV1H101JCV | 100p |  |
| C209 | ECUV1C104ZFV | 0.1 |  |
| C210 | ECUV1C104KBV | 0.1 |  |
| C211 | ECEA0JU331 | 330 | S |
| C212 | ECUV1H152KBV | 0.0015 |  |
| C213 | ECUV1C104ZFV | 0.1 |  |
| C214 | ECUV1C104KBV | 0.1 |  |
| C215 | ECUV1C104ZFV | 0.1 |  |
| C216 | ECEA1HU100 | 10 | S |
| C217 | ECUV1H223KBV | 0.022 | S |
| C218 | ECUV1C104ZFV | 0.1 |  |
| C219 | ECUV1C104KBV | 0.1 |  |
| C220 | ECUV1H681JCV | 680p |  |
| C221 | ECEA1VU101 | 100 | S |
| C222 | ECUV1H330JCV | 33p |  |
| C223 | ECUV1H100DCV | 10p | S |
| C224 | ECUV1C104KBV | 0.1 |  |
| C225 | ECUV1C104ZFV | 0.1 |  |
| C226 | ECUV1C104KBV | 0.1 |  |
| C228 | ECEA1EU101 | 100 | S |
| C229 | ECEA0JK221 | 220 | S |
| C230 | ECUV1C104ZFV | 0.1 |  |
| C231 | ECUV1C104ZFV | 0.1 |  |
| C234 | ECUV1C104ZFV | 0.1 |  |
| C235 | ECUV1H152KBV | 0.0015 |  |
| C236 | ECEA1HKS010 | 1 | S |
| C237 | ECEA0JK221 | 220 | S |
| C239 | ECUV1C104KBV | 0.1 |  |
| C240 | ECUV1A105ZFV | 1 |  |
| C241 | ECUV1A105ZFV | 1 |  |
| C242 | ECUV1C273KBV | 0.027 |  |
| C243 | ECUV1C104KBV | 0.1 |  |
| C244 | ECUV1A224KBV | 0.22 |  |
| C246 | ECUV1H102KBV | 0.001 |  |
| C247 | ECUV1H270JCV | 27p |  |
| C248 | ECUV1H681JCV | 680p | S |
| C250 | ECEA1AU101 | 100 | S |
| C252 | ECUV1H681JCV | 680p | S |
| C254 | ECUV1C104KBV | 0.1 |  |
| C256 | ECUV1C104KBV | 0.1 |  |
| C257 | ECUV1C104KBV | 0.1 |  |
| C261 | ECUV1H821KBV | 820p |  |
| C262 | ECUV1H391JCV | 390p |  |
| C263 | ECUV1H223KBV | 0.022 | S |
| C266 | ECEA1CKS100 | 10 | S |
| C267 | ECUV1H100DCV | 10p | S |
| C268 | ECUV1C273KBV | 0.027 |  |

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| C269 | ECUV1C104ZFV | 0.1 | |
| C270 | ECUV1H391JCV | 390p | |
| C272 | ECUV1H222KBV | 0.0022 | |
| C273 | ECUV1C104ZFV | 0.1 | |
| C274 | ECEA1VU101 | 100 | S |
| C275 | ECUV1C104ZFV | 0.1 | |
| C277 | ECUV1H682KBV | 0.0068 | |
| C278 | ECEA1HU2R2 | 2.2 | S |
| C279 | ECEA1VU331 | 330 | S |
| C280 | ECUV1H271JCV | 270p | |
| C281 | ECUV1H100DCV | 10p | S |
| C282 | ECUV1C104ZFV | 0.1 | |
| C284 | ECUV1H332KBV | 0.0033 | |
| C285 | ECUV1H223KBV | 0.022 | S |
| C286 | ECUV1H100DCV | 10p | S |
| C287 | ECUV1H100DCV | 10p | S |
| C288 | ECUV1H223KBV | 0.022 | S |
| C289 | ECUV1H271JCV | 270p | |
| C290 | ECEA1CKS100 | 10 | S |
| C291 | ECUV1H103KB | 0.01 | |
| C292 | ECUV1H472KBV | 0.0047 | |
| C293 | ECEA1EU470 | 47 | S |
| C294 | ECUV1C104ZFV | 0.1 | |
| C295 | ECUV1H101JCV | 100p | |
| C296 | ECUV1H272KBV | 0.0027 | |
| C298 | ECUV1H392KBV | 0.0039 | |
| C299 | ECUV1C104ZFV | 0.1 | |
| C300 | ECUV1A224KBV | 0.22 | |
| C301 | ECUV1H122KBV | 0.0012 | |
| C302 | ECUV1H100DCV | 10p | S |
| C304 | ECUV1H121JCV | 120p | |
| C305 | ECUV1H392KBV | 0.0039 | |
| C306 | ECUV1C334ZFV | 0.33 | |
| C307 | ECEA1HKS010 | 1 | S |
| C308 | ECUV1C104KBV | 0.1 | |
| C309 | ECUV1C563KBV | 0.056 | |
| C310 | ECUV1C563KBV | 0.056 | |
| C311 | ECUV1C334ZFV | 0.33 | |
| C312 | ECEA1HKS4R7 | 4.7 | S |
| C313 | ECUV1C683KBV | 0.068 | |
| C315 | ECUV1C104ZFV | 0.1 | |
| C316 | ECEA1HKS4R7 | 4.7 | S |
| C317 | ECUV1H822KBV | 0.0082 | |
| C318 | ECEA0JU331 | 330 | S |
| C319 | ECUV1C104ZFV | 0.1 | |
| C320 | ECUV1H101JCV | 100p | |
| C321 | ECEA1CKS100 | 10 | S |
| C322 | ECEA1HU101 | 100 | S |
| C325 | ECUV1H332KBV | 0.0033 | |
| C326 | ECUV1C104ZFV | 0.1 | |
| C327 | ECUV1H103KBV | 0.01 | |
| C328 | ECKD2H681KB | 680p | S |
| C329 | ECKD2H681KB | 680p | S |
| C330 | ECUV1H472KBV | 0.0047 | |

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| C332 | ECUV1C273KBV | 0.027 | |
| C333 | ECUV1H333KBV | 0.033 | S |
| C334 | ECUV1H333KBV | 0.033 | S |
| C335 | ECUV1C273KBV | 0.027 | |
| C336 | ECUV1C104ZFV | 0.1 | |
| C337 | ECEA0JU331 | 330 | S |
| C338 | ECUV1H103KBV | 0.01 | |
| C340 | ECUV1H271JCV | 270p | |
| C341 | ECUV1H100DCV | 10p | S |
| C343 | ECQE2E105KZ | 1 | S |
| C344 | ECUV1H271JCV | 270p | |
| C345 | ECUV1H100DCV | 10p | S |
| C347 | ECUV1H471JCV | 470p | |
| C349 | ECUV1A224KBV | 0.22 | |
| C350 | ECUV1C104KBV | 0.1 | |
| C351 | ECUV1C104KBV | 0.1 | |
| C353 | ECUV1H103KBV | 0.01 | |
| C354 | ECUV1H103KBV | 0.01 | |
| C355 | ECEA1CKS100 | 10 | S |
| C357 | ECUV1H103KBV | 0.01 | |
| C359 | ECEA1CKS100 | 10 | S |
| C360 | ECEA1EU470 | 47 | S |
| C363 | ECUV1H103KBV | 0.01 | |
| C365 | ECUV1C104ZFV | 0.1 | |
| C366 | ECUV1C104ZFV | 0.1 | |
| C372 | ECEA1EU101 | 100 | S |
| C373 | ECEA0JK221 | 220 | S |
| C374 | ECUV1C104KBV | 0.1 | |
| C375 | ECUV1H103KBV | 0.01 | |
| C377 | ECUV1H100DCV | 10p | S |
| | | (RESISTORS) | |
| C324 | ERJ3GEYJ124 | 120k | |
| J225 | ERJ3GEY0R00 | 0 | |
| J227 | ERJ3GEY0R00 | 0 | |
| J228 | ERJ3GEY0R00 | 0 | |
| J369 | ERJ3GEY0R00 | 0 | |
| J384 | ERJ3GEY0R00 | 0 | |
| L209 | ERJ3GEY0R00 | 0 | |
| L210 | ERJ3GEY0R00 | 0 | |
| L211 | ERJ3GEY0R00 | 0 | |
| L212 | ERJ3GEY0R00 | 0 | |
| L214 | ERJ3GEY0R00 | 0 | |
| L215 | ERJ3GEY0R00 | 0 | |
| L216 | ERJ3GEY0R00 | 0 | |
| L217 | ERJ3GEY0R00 | 0 | |
| L218 | ERJ3GEY0R00 | 0 | |
| L219 | ERJ3GEY0R00 | 0 | |
| L220 | ERJ3GEY0R00 | 0 | |
| L227 | ERJ3GEY0R00 | 0 | |
| L228 | ERJ3GEYJ103 | 0 | |
| L231 | ERJ3GEY0R00 | 0 | |
| L262 | ERJ3GEY0R00 | 0 | |
| L263 | ERJ3GEY0R00 | 0 | |
| L274 | ERJ3GEY0R00 | 0 | |

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| R201 | ERJ3GEYJ101 | 100 | |
| R202 | ERJ3GEYJ101 | 100 | |
| R203 | ERJ3GEYJ101 | 100 | |
| R204 | ERJ3GEYJ104 | 100k | |
| R205 | ERJ3GEYJ154 | 150k | |
| R206 | ERJ3GEYJ472 | 4.7k | |
| R207 | ERJ3GEYJ683 | 68k | |
| R208 | ERJ3GEYJ104 | 100k | |
| R209 | ERJ3GEYJ822 | 8.2k | |
| R210 | ERJ3GEYJ124 | 120k | |
| R212 | ERJ3GEYJ224 | 220k | |
| R213 | ERJ3GEYJ224 | 220k | |
| R214 | ERJ3GEYJ394 | 390k | |
| R216 | ERJ3GEYJ183 | 18k | |
| R218 | ERJ3GEYJ123 | 12k | |
| R219 | ERJ3GEYJ394 | 390k | |
| R220 | ERJ3GEYJ134 | 130k | |
| R221 | ERJ3GEYJ563 | 56k | |
| R222 | ERJ3GEYJ153 | 15k | |
| R223 | ERJ3GEYJ103 | 10k | |
| R224 | ERJ3GEYJ223 | 22k | |
| R225 | ERJ3GEYJ223 | 22k | |
| R226 | ERJ3GEYJ4R7 | 4.7 | |
| R227 | ERJ3GEYJ394 | 390k | |
| R228 | ERJ3GEYJ223 | 22k | |
| R229 | ERJ3GEYJ223 | 22k | |
| R230 | ERJ3GEYJ822 | 8.2k | |
| R231 | ERJ3GEYJ222 | 2.2k | |
| R232 | ERJ3GEYJ102 | 1k | |
| R233 | ERJ3GEYJ103 | 10k | |
| R234 | ERJ3GEYJ123 | 12k | |
| R235 | ERJ3GEYJ472 | 4.7k | |
| R236 | ERJ3GEYJ103 | 10k | |
| R237 | ERJ3GEYJ103 | 10k | |
| R238 | ERJ3GEYJ684 | 680k | |
| R239 | ERJ3GEYJ183 | 18k | |
| R240 | ERJ3GEYJ4R7 | 4.7 | |
| R241 | ERJ3GEYJ394 | 390k | |
| R242 | ERJ3GEYJ154 | 150k | |
| R243 | ERJ3GEYJ124 | 120k | |
| R246 | ERJ3GEYJ103 | 10k | |
| R248 | ERJ3GEYJ473 | 47k | |
| R249 | ERJ3GEYJ473 | 47k | |
| R250 | ERJ3GEYJ273 | 27k | |
| R251 | ERJ3GEYJ103 | 10k | |
| R253 | ERJ3GEYJ103 | 10k | |
| R254 | ERJ3GEYJ273 | 27k | |
| R256 | ERJ3GEYJ103 | 10k | |
| R257 | ERJ3GEYJ103 | 10k | |
| R258 | ERJ3GEYJ683 | 68k | |
| R260 | ERJ3GEYJ223 | 22k | |
| R261 | ERJ3GEYJ152 | 1.5k | |
| R262 | ERJ3GEYJ821 | 820 | |
| R263 | ERDS2TJ150 | 15 | S |

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| R264 | ERJ3GEYJ103 | 10k | |
| R266 | ERJ3GEYJ222 | 2.2k | |
| R267 | ERJ3GEYJ563 | 56k | |
| R268 | ERJ3GEYJ103 | 10k | |
| R269 | ERJ3GEYJ563 | 56k | |
| R270 | ERJ3GEYJ683 | 68k | |
| R272 | ERJ3GEYJ103 | 10k | |
| R273 | ERJ3GEYJ562 | 5.6k | |
| R275 | ERJ3GEYJ123 | 12k | |
| R276 | ERJ3GEYJ183 | 18k | |
| R279 | ERJ3GEYJ333 | 33k | |
| R280 | ERJ3GEYJ561 | 560 | |
| R281 | ERJ3GEYJ102 | 1k | |
| R282 | ERJ3GEYJ474 | 470k | |
| R283 | ERJ3GEYJ103 | 10k | |
| R284 | ERJ3GEYJ331 | 330 | |
| R285 | ERJ3GEYJ824 | 820k | |
| R286 | ERJ3GEYJ333 | 33k | |
| R287 | ERJ3GEYJ332 | 3.3k | |
| R288 | ERJ3GEYJ103 | 10k | |
| R289 | ERJ3GEYJ334 | 330k | |
| R290 | ERJ3GEYJ101 | 100 | |
| R291 | ERJ3GEYJ102 | 1k | |
| R292 | ERJ3GEYJ102 | 1k | |
| R293 | ERJ3GEYJ332 | 3.3k | |
| R294 | ERDS2TJ561 | 560 | S |
| R295 | ERDS2TJ100 | 10 | S |
| R296 | ERG2SJ821 | 820 | |
| R297 | ERJ3GEYJ223 | 22k | |
| R298 | ERJ3GEYJ104 | 100k | |
| R300 | ERJ3GEYJ204 | 200k | |
| R301 | ERJ3GEYJ103 | 10k | |
| R303 | ERJ3GEYJ562 | 5.6k | |
| R304 | ERDS1VJ561 | 560 | S |
| R305 | ERJ3GEYJ105 | 1M | |
| R307 | ERJ3GEYJ472 | 4.7k | |
| R310 | ERJ3GEYJ102 | 1k | |
| R311 | ERJ3GEYJ104 | 100k | |
| R312 | ERJ3GEYJ103 | 10k | |
| R314 | ERDS1VJ333 | 33k | S |
| R315 | ERJ3GEYJ134 | 130k | |
| R316 | ERJ3GEYJ101 | 100 | |
| R318 | ERJ3GEYJ333 | 33k | |
| R319 | ERDS2TJ563 | 56k | S |
| R321 | ERJ3GEYJ134 | 130k | |
| R323 | ERDS1TJ183 | 18k | S |
| R324 | ERJ3GEYJ273 | 27k | |
| R325 | ERJ3GEYJ243 | 24k | |
| R326 | ERJ3GEYJ243 | 24k | |
| R327 | ERJ3GEYJ103 | 10k | |
| R330 | ERDS1TJ6R8 | 6.8 | S |
| R333 | ERJ3GEYJ331 | 330 | |
| R334 | ERJ3GEYJ561 | 560 | |
| R335 | ERJ3GEYJ563 | 56k | |

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| R337 | ERJ3GEYJ622 | 6.2k | |
| R338 | ERJ3GEYJ182 | 1.8k | |
| R339 | ERJ3GEYJ101 | 100 | |
| R340 | ERJ3GEYJ331 | 330 | |
| R342 | ERJ3GEYJ104 | 100k | |
| R343 | ERJ3GEYJ331 | 330 | |
| R345 | ERJ3GEYJ182 | 1.8k | |
| R364 | ERJ3GEYJ104 | 100k | |
| | | (RELAYS) | |
| RY203 | ATXD20328 | RELAY | S ⚠ |
| | | (VARISTORS) | |
| SA201 | PQVDDSS301L | SURGE ABSORBER | S |
| SA202 | PFRZ001Z | SURGE ABSORBER | S ⚠ |
| ZR201 | ERZVA7D151 | VARISTOR | |
| | | (TRANSFORMERS) | |
| T201 | PFLT8E003 | TRANSFORMER | S ⚠ |
| T202 | PFLT8E004 | TRANSFORMER | S ⚠ |
| | | (PHOTO ELECTRIC TRANSDUCER) | |
| PC201 | 0N3131SKU | PHOTO TRANSDUCER | ⚠ |
| PC202 | 0N3131SKU | PHOTO TRANSDUCER | ⚠ |
| PC203 | PQVITLP627 | PHOTO TRANSDUCER | S ⚠ |
| PC204 | PQVITLP620K | PHOTO TRANSDUCER | S ⚠ |
| PS201 | CNA1006N | PHOTO TRANSDUCER | |
| | | (OTHERS) | |
| F201 | PQBA1N10NMAL | FUSE | S |
| SW201 | ESE14A211 | PUSH SWITCH | |

## 12.5. OPERATION BOARD PARTS

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| PCB3 | PFLP1378MZ | OPERATION BOARD ASS'Y (RTL) | |
| | | (IC) | |
| IC101 | MN7D032Z9J | IC | |
| | | (DIODE) | |
| LED101 | PQVDR325CA47 | DIODE(SI) | S |
| | | (CONNECTOR) | |
| CN101 | PQJP11G43Z | CONNECTOR,11P | |
| | | (LCD) | |
| CN102 | L5DAAFB00001 | LIQUID CRYSTAL DISPLAY | |
| | | (CAPACITORS) | |
| C101 | ECUV1C104ZFV | 0.1 | |
| C102 | ECUV1H103KBV | 0.01 | |
| C103 | ECUV1H101JCV | 100p | |
| C104 | ECUV1H101JCV | 100p | |
| C105 | ECUV1H101JCV | 100p | |
| C106 | ECUV1H101JCV | 100p | |
| C110 | ECUV1C104ZFV | 0.1 | |
| C111 | ECUV1C104ZFV | 0.1 | |
| C112 | ECEA1CK101 | 100 | S |
| C113 | ECUV1C104ZFV | 0.1 | |
| C117 | ECUV1C104ZFV | 0.1 | |
| C118 | ECEA1CK101 | 100 | S |

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| C119 | ECUV1H101JCV | 100p | |
| | | (RESISTORS) | |
| R101 | ERJ3GEYJ101 | 100 | |
| R102 | ERJ3GEYJ101 | 100 | |
| R103 | ERJ3GEYJ101 | 100 | |
| R104 | ERJ3GEYJ101 | 100 | |
| R105 | ERJ3GEYJ101 | 100 | |
| R106 | ERJ3GEYJ101 | 100 | |
| R107 | ERJ3GEYJ471 | 470 | |
| R108 | ERJ3GEYJ222 | 2.2k | |
| R109 | ERJ3GEYJ183 | 18k | |
| R111 | ERJ3GEYJ222 | 2.2k | |
| R112 | ERJ3GEYJ4R7 | 4.7 | |
| R113 | ERJ3GEYJ181 | 180 | |
| R114 | ERJ3GEYJ181 | 180 | |
| R115 | ERJ3GEYJ181 | 180 | |
| R116 | ERJ3GEYJ181 | 180 | |
| R117 | ERJ3GEYJ181 | 180 | |
| R118 | ERJ3GEYJ181 | 180 | |
| R119 | ERJ3GEYJ181 | 180 | |
| R120 | ERJ3GEYJ181 | 180 | |
| | | (SWCTCHS) | |
| SW101 | EVQ11Y05B | SWITCH | |
| SW102 | EVQ11Y05B | SWITCH | |
| SW103 | EVQ11Y05B | SWITCH | |
| SW104 | EVQ11Y05B | SWITCH | |
| SW105 | EVQ11Y05B | SWITCH | |
| SW106 | EVQ11Y05B | SWITCH | |
| SW107 | EVQ11Y05B | SWITCH | |
| SW108 | EVQ11Y05B | SWITCH | |
| SW109 | EVQ11Y05B | SWITCH | |
| SW110 | EVQ11Y05B | SWITCH | |
| SW111 | EVQ11Y05B | SWITCH | |
| SW112 | EVQ11Y05B | SWITCH | |
| SW113 | EVQ11Y05B | SWITCH | |
| SW114 | EVQ11Y05B | SWITCH | |
| SW115 | EVQ11Y05B | SWITCH | |
| SW116 | EVQ11Y05B | SWITCH | |
| SW117 | EVQ11Y05B | SWITCH | |
| SW118 | EVQ11Y05B | SWITCH | |
| SW119 | EVQ11Y05B | SWITCH | |
| SW120 | EVQ11Y05B | SWITCH | |
| SW121 | EVQ11Y05B | SWITCH | |
| SW122 | EVQ11Y05B | SWITCH | |
| SW123 | EVQ11Y05B | SWITCH | |
| SW124 | EVQ11Y05B | SWITCH | |
| SW125 | EVQ11Y05B | SWITCH | |
| SW126 | EVQ11Y05B | SWITCH | |
| SW127 | EVQ11Y05B | SWITCH | |
| SW128 | EVQ11Y05B | SWITCH | |
| SW129 | EVQ11Y05B | SWITCH | |
| SW130 | EVQ11Y05B | SWITCH | |
| SW131 | EVQ11Y05B | SWITCH | |
| SW132 | EVQ11Y05B | SWITCH | |

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| SW133 | EVQ11Y05B | SWITCH | |
| SW134 | EVQ11Y05B | SWITCH | |
| SW135 | EVQ11Y05B | SWITCH | |
| SW136 | EVQ11Y05B | SWITCH | |
| SW137 | EVQ11Y05B | SWITCH | |

## 12.6. HIGH VOLTAGE POWER SUPPLY BOARD PARTS

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| PCB4 | EUKMBN862HA | HIGH VOLTAGE POWER SUPPLY BOARD ASS'Y(RTL) | ⚠ |
| | | (IC) | |
| IC101 | MA6742S | IC | |
| | | (TRANSISTORS) | |
| Q101 | 2SD1990P | TRANSISTOR(SI) | |
| Q102 | 2SB709ARTX | TRANSISTOR(SI) | |
| Q103 | 2SB709ARTX | TRANSISTOR(SI) | |
| Q202 | 2SD2137A | TRANSISTOR(SI) | |
| Q204 | 2SA1413 | TRANSISTOR(SI) | |
| | | (DIODES) | |
| D102 | PQVDS5688G | DIODE(SI) | |
| D103 | PFVDDHM3M20 | DIODE(SI) | S |
| D104 | PFVDDHM3M20 | DIODE(SI) | S |
| D110 | PFVDERA9102 | DIODE(SI) | |
| D111 | MA3J147 | DIODE(SI) | |
| D112 | MA3J147 | DIODE(SI) | |
| D201 | PQVDS5688G | DIODE(SI) | |
| D202 | PFVDDHM3M20 | DIODE(SI) | S |
| D203 | PFVDDHM3M20 | DIODE(SI) | S |
| D205 | PQVDS5688G | DIODE(SI) | |
| ZD202 | PQVDRD6.2ESB | DIODE(SI) | |
| ZD203 | PFVDRD200EB | DIODE(SI) | S |
| | | (CONNECTOR) | |
| CN2 | PQJP9G30Y | CONNECTOR,9PIN | |
| | | (CAPACITORS) | |
| C101 | ECA1VHG470 | 47 | |
| C102 | ECQV1H473KB | 0.047 | |
| C103 | ECEA50M1 | 1 | |
| C104 | ECEA50M2R2 | 2.2 | |
| C106 | ECQB1H153KB | 0.015 | |
| C107 | ECKR2H102KB | 0.001 | |
| C108 | ECKK3A471KB | 470P | |
| C109 | ECKK3D102KB | 0.001 | |
| C110 | ECUV1H103KB | 0.01 | |
| C111 | ECUV1H102KB | 0.001 | |
| C112 | ECUV1H102KB | 0.001 | |
| C202 | ECKK3A471KB | 470P | |
| C203 | ECKR1H472KB | 0.0047 | |
| C204 | ECKK3D221KB | 220P | |
| C206 | ECQB1H103JF | 0.01 | |
| C207 | ECKK3A471KB | 470P | |
| C208 | ECQE2103KS | 0.01 | |
| C209 | ECKK3D102KB | 0.001 | |
| C210 | ECKZ3A101KB | 100P | S |

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| C211 | ECKZ3A101KB | 100P | S |
| C212 | ECUV1H221JC | 220P | |
| | | (RESISTORS) | |
| R102 | ERJ6GEYJ104 | 100k | |
| R103 | ERJ6ENF7871 | 7.87k | |
| R104 | ERJ6GEYJ103 | 10k | |
| R105 | ERJ6ENF1002 | 10k | S |
| R106 | ERJ6ENF1653 | 165k | |
| R107 | ERJ6ENF6653 | 665k | |
| R108 | ERJ6ENF8451 | 8.45k | |
| R110 | ERJ6ENF1003 | 100k | |
| R113 | ERDS2TJ102 | 1k | |
| R114 | PFRGVR25J106 | 10M | S |
| R116 | ERJ6GEYJ272 | 2.7k | |
| R117 | ERDS2TJ272 | 2.7k | |
| R119 | ERJ6ENF7871 | 7.87k | |
| R120 | ERJ6GEYJ473 | 47k | |
| R121 | ERJ6GEYJ103 | 10k | |
| R122 | ERJ6GEYJ103 | 10k | |
| R123 | ERJ6GEYJ103 | 10k | |
| R124 | ERJ6GEYJ103 | 10k | |
| R125 | ERJ6GEYJ103 | 10k | |
| R126 | ERDS2TJ103 | 10k | |
| R127 | ERDS2TJ103 | 10k | |
| R128 | ERDS2TJ152 | 1.5k | |
| R129 | ERDS2TJ152 | 1.5k | |
| R201 | ERDS2TJ152 | 1.5k | |
| R202 | ERJ6ENF1582 | 15.8k | |
| R206 | PQ4R10XJ102 | 1k | |
| R209 | PFRGVR25J105 | 1M | S |
| R210 | ER0S2TKF2492 | 24.9k | |
| R211 | PFRGR25F1504 | 1.5M | S |
| R214 | PFRGVR25J105 | 1M | S |
| R215 | PFRGVR25J105 | 1M | S |
| R216 | ERDS2TJ333 | 33k | |
| R217 | PFRGR25F1005 | 10M | S |
| R218 | ERDS1TJ225 | 2.2M | |
| R219 | ERDS2TJ473 | 47k | |
| R220 | ERDS1TJ225 | 2.2M | |
| VR101 | ER0S2TKF7871 | 7.87k | |
| | | (FUSE) | |
| IP101 | PFBAICPN38 | FUSE | S |
| | | (PHOTO ELECTRIC TRANSDUCER) | |
| PC201 | PFVISG206S | PHOTO COUPLER | S |
| | | (SWITCH) | |
| SW101 | PFSEDE2LEALB | MICRO SWITCH | ⚠S |
| | | (TRANSFORMERS) | |
| T101 | MS15BTP20 | TRANSFORMER | ⚠ |
| T201 | ETB16GKL1 | TRANSFORMER | ⚠ |
| | | (VARIABLE RESISTOR) | |
| VR201 | EVMAASA00B53 | VAREABLE RESISTOR | |
| | | | |

## 12.7. LOW VOLTAGE POWER SUPPLY BOARD PARTS

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| PCB5 | N0AC2GF00003 | LOW VOLTAGE POWER SUPPLY BOARD ASS'Y (RTL) | ⚠S |
|  |  | (ICs) |  |
| IC101 | PFVIFA5317P | IC | S |
| IC201 | AN1431T | IC |  |
| IC202 | PFVIPQ05RD11 | IC | S |
|  |  | (TRANSISTOR) |  |
| Q101 | 2SK2717 | TRANSISTOR(SI) | ⚠ |
|  |  | (DIODES) |  |
| D101 | PFVDLT1505 | DIODE(SI) | ⚠S |
| D102 | PFVDLT1505 | DIODE(SI) | ⚠S |
| D103 | PFVDLT1505 | DIODE(SI) | ⚠S |
| D104 | PFVDLT1505 | DIODE(SI) | ⚠S |
| D105 | PFVDEG01C | DIODE(SI) | S |
| D106 | 1SS133 | DIODE(SI) |  |
| D107 | MA4220 | DIODE(SI) |  |
| D108 | PFVDAU02Z | DIODE(SI) | S |
| D109 | PFVDD1NL20U | DIODE(SI) | S |
| D201 | PFVDSF5LC20U | DIODE(SI) | S |
| D202 | PFVDRK36LFB2 | DIODE(SI) | S |
|  |  | (CONNECTORS) |  |
| CN101 | PQJP2D98Z | CONNECTOR, 2 PIN | ⚠S |
| CN102 | PQJP2D98Z | CONNECTOR, 2 PIN | ⚠S |
| CN201 | PQJP10G30Y | CONNECTOR, 10 PIN | S |
|  |  | (FUSES) |  |
| F101 | PFBA21500315 | FUSE | ⚠S |
| F102 | PFBA215005 | FUSE | ⚠S |
|  |  | (COILS) |  |
| L101 | PFLES11V0523 | COIL | ⚠S |
| L102 | PFLES11V0523 | COIL | ⚠S |
| L103 | PFLQDR020006 | COIL | ⚠S |
|  |  | (PHOTO ELECTRIC TRANSDUCERS) |  |
| PC101 | 0N3171 | PHOTO COUPLER | ⚠ |
| PC102 | PFVIS21ME6NY | PHOTO COUPLER | ⚠S |
|  |  | (COMPONENTS PARTS) |  |
| L104 | EXCELDR35 | COMPONENTS PARTS |  |
| L108 | EXCELDR35 | COMPONENTS PARTS |  |
| L206 | EXCELDR35 | COMPONENTS PARTS |  |
| SCR101 | PFXFTM1661SE | COMPONENTS PARTS | ⚠S |
|  |  | (TRANSFORMER) |  |
| T101 | ETS29AK6P8AC | TRANSFORMER | ⚠ |
|  |  | (VARIABLE RESISTOR) |  |
| VR201 | EVNDJAA03B53 | VARIABLE RESISTOR |  |
|  |  | (VARISTOR) |  |
| ZNR101 | ERZV10D751 | VARISTOR | ⚠ |
|  |  | (RESISTORS) |  |
| J210 | ERJ3GEYJ0R00 | 0 |  |
| J214 | ERJ3GEYJ0R00 | 0 |  |

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| R101 | ERDS1J105 | 1M | ⚠ |
| R102 | ERDS2J824 | 820k | |
| R103 | ERDS2J824 | 820k | |
| R104 | ERG2SJ104 | 100k | |
| R105 | ERX2SJR22 | 0.22 | |
| R106 | ERG2SJ470 | 47 | |
| R108 | ERDS2FJ150 | 15 | |
| R109 | ERDS2FJ220 | 22 | |
| R110 | ERDS2J823 | 82k | |
| R111 | ERDS2J823 | 82k | |
| R112 | ERDS1FJ121 | 120 | |
| R113 | ERDS2FJ101 | 100 | |
| R114 | ERDS1FJ220 | 22 | |
| R121 | ERJ3GEYJ103 | 10k | |
| R122 | ERJ3GEYHJ561 | 560 | |
| R124 | ERJ3GEYHJ331 | 330 | |
| R125 | ERJ3GEYJ103 | 10k | |
| R126 | ERJ3GEYHJ682 | 6.8k | |
| R127 | ERJ3GEYHJ102 | 1k | |
| R128 | ERJ3GEYHJ181 | 180 | |
| R201 | ERDS2J470 | 47 | |
| R202 | ERG2FJS152 | 1.5k | |
| R203 | ERG2FJS152 | 1.5k | |
| R207 | ERDS2J221 | 220 | |
| R221 | ERJ3GEYF222 | 2.2k | |
| R222 | ERJ3GEYF222 | 2.2k | |
| R223 | ERJ3GEYJ101 | 100 | |
| R224 | ERJ3GEYJ273 | 27k | |
| R225 | ERJ3GEYJ332 | 3.3k | |
| | | (CAPACITORS) | |
| C101 | ECQU2A224ML | 0.22 | ⚠ |
| C102 | ECQU2A224ML | 0.22 | ⚠ |
| C103 | PFKDE2GA222M | 2200 | ⚠S |
| C104 | PFKDE2GA222M | 2200 | ⚠S |
| C106 | EEUEB2W560U | 56 | |
| C108 | ECKD3A102KBP | 1000P | |
| C109 | PFCEA35A47M | 47 | S |
| C110 | PFKD12EGA222 | 2200 | ⚠S |
| C111 | ECQU2A104ML | 0.1 | ⚠ |
| C112 | ECQB1H104KF | 0.1 | |
| C119 | ECKD3A470KBP | 47P | |
| C121 | ECUV1H472KBV | 0.0047 | |
| C122 | ECUV1A224KBV | 0.22 | |
| C123 | ECUV1H821KBV | 820P | |
| C124 | ECUV1E104KBV | 0.1 | |
| C201 | PFCEA35F1000 | 1000 | S |
| C202 | ECKD3A102KBP | 0.001 | |
| C203 | PFCEA35F471 | 470 | S |
| C204 | PFCEA35A47M | 47 | S |
| C205 | PFCEA50A01M | 0.1 | S |
| C206 | ECKD3A102KBP | 0.001 | |
| C210 | ECUV1E104KBV | 0.1 | |
| C222 | ECUV1H104KBX | 0.1 | |

## 12.8. MOTOR DRIVE BOARD PARTS

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| PCB6 | PFLP1377MZ-B | MOTOR DRIVE BOARD ASS'Y (RTL) | |
| | | (IC) | |
| IC1 | PFVIMT200303 | IC | |
| | | (TRANSISTOR) | |
| Q1 | PQVTDTC123JU | TRANSISTOR(SI) | |
| | | (CONNECTORS) | |
| CN1 | PQJP14G30Y | CONNECTOR,14P | S |
| CN2 | PQJP4G30Z | CONNECTOR,4P | |
| | | (CAPACITORS) | |
| C1 | ECUV1C104KBV | 0.1 | S |
| C2 | PFCA1HYK331M | 330P | |
| C3 | ECUV1H104ZFV | 0.1 | S |
| C4 | ECEA1CK101 | 100 | S |
| C5 | ECUV1C104KBV | 0.1 | S |
| C6 | ECUV1C104KBV | 0.1 | S |
| C7 | ECUV1H332KBV | 0.0033 | |
| C8 | ECUV1C104KBV | 0.1 | S |
| | | (RESISTORS) | |
| R1 | ERJ3GEYJ331 | 330 | |
| R2 | ERX2SZGR47 | 0.47 | |
| R3 | ERJ3GEYJ221 | 220 | |
| R4 | ERX2SZGR47 | 0.47 | |
| R5 | ERJ3GEYJ183 | 18k | |
| R7 | ERJ3GEYJ221 | 220 | |
| R8 | ERJ3GEYJ333 | 33k | |
| | | (FUSE) | |
| F1 | PFRB0032315T | FUSE | |
| | | (PHOTO ELECTRIC TRANSDUCERS) | |
| PS1 | CNA1006N | PHOTO SENSOR | |
| | | (OTHER) | |
| HSINK | PFMY1001Z | HEAT SINK | |

## 12.9. SENSOR BOARD PARTS

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| PCB7 | PFLP1377MZ-C | SENSOR BOARD ASS'Y(RTL) | |
| | | (CONNECTORS) | |
| CN50 | PQJP03A21Z | CONNECTOR,3P | |
| CN51 | PQJP5G43Y | CONNECTOR,5P | S |
| | | (CAPACITOR) | |
| C51 | ECUV1H271KBV | 270p | |
| | | (PHOTO ELECTRIC TRANSDUCERS) | |
| PS50 | PFVIRM574SL | PHOTO SENSOR | |

## 12.10. VARISTOR BOARD PARTS

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| PCB8 | PFLP1377MZ-D | VARISTOR BOARD ASS'Y(RTL) | |
| | | (VATISTOR) | |
| ZNR60 | PFRV271NS05K | VARISTOR | |

## 12.11. ADF RELAY BOARD PARTS

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| PCB9 | PFLP1379MZ-A | ADF RELAY BOARD ASS'Y(RTY) | |
| | | (CONNECTORS) | |
| CN500 | PQJP5G30Y | CONNECTOR,5P | S |
| CN501 | K1KA11A00032 | CONNECTOR,11P | |
| CN502 | PQJP3G30Z | CONNECTOR,3P | S |
| | | (SWITCHES) | |
| SW500 | PFSH1A003Z | SWITCH | S |
| SW501 | PFSH1A008Z | SWITCH | S |
| | | (PHOTO ELECTRIC TRANSDUCER) | |
| PS500 | CNA1006N | PHOTO SENSOR | |

## 12.12. PF SENSOR BOARD PARTS

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| PCB10 | PFLP1379MZ-B | PF SENSOR BOARD ASS'Y(RTL) | |
| | | (CONNECTORS) | |
| CN503 | PQJP3G30Z | CONNECTOR,3P | S |
| | | (PHOTO ELECTRIC TRANSDUCER) | |
| PS501 | PQVIPS4506 | PHOTO SENSOR | S |

## 12.13. CIS RELAY BOARD PARTS

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| PCB11 | PFLP1379MZ-C | CIS RELAY BOARD ASS'Y(RTL) | |
| | | (CAPACITORS) | |
| C501 | ECUV1H151JCV | 150p | |
| C502 | ECUV1H151JCV | 150p | |
| | | (CONNECTORS) | |
| CN504 | PQJP4G30Y | CONNECTOR,4P | S |
| CN505 | PQJP10G30Y | CONNECTOR,10P | S |
| CN506 | K1MN03B00016 | CONNECTOR,3P | |
| CN507 | K1MN10B00082 | CONNECTOR,10P | |
| | | (PHOTO ELECTRIC TRANSDUCER) | |
| PS502 | PQVIPS4506 | PHOTO SENSOR | S |
| | | (RESISTORS) | |
| R501 | ERJ3GEY0R00 | 0 | |
| R502 | ERJ3GEY0R00 | 0 | |

## 12.14. CIS SENSOR BOARD PARTS

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| PCB12 | PFLP1379MZ-D | CIS SENSOR BOARD ASS'Y(RTL) | |
| | | (CONNECTORS) | |
| CN508 | K1MN03B00016 | CONNECTOR,3P | |
| | | (PHOTO ELECTRIC TRANSDUCER) | |
| PS503 | PQVIPS4506 | PHOTO SENSOR | S |

## 12.15. SCAN MOTOR DRIVE BOARD PARTS

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| PCB13 | PFLP1379MZ-E | SCAN MOTOR DRIVER BOARD ASS'Y(RTL) | |
| | | (IC) | |
| IC500 | PFVIT2003APS | IC | S |
| | | (DIODE) | |
| D500 | MA7160 | DIODE | |
| | | (CONNECTORS) | |
| CN509 | PQJP6G30Y | CONNECTOR,6P | S |
| CN510 | PQJP5G30Y | CONNECTOR,5P | S |

## 12.16. FIXTURES AND TOOLS

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| EC1 | PQZZ9K4Z | EXTENSION CORD, 9P | |
| EC2 | PFZZ10K1Z | EXTENSION CORD, 10P | |
| EC3 | PQZZ28F1Z | EXTENSION CORD, 28P | |
| EC4 | PFZZ14K3Z | EXTENSION CORD, 14P | |
| EC5 | PFZZ11K12Z | EXTENSION CORD, 11P | |
| EC6 | PQZZ3K5Z | EXTENSION CORD, 3P | |
| EC7 | PQZZ2K12Z | EXTENSION CORD, 2P | |
| EC8 | PFZZ5K13Z | EXTENSION CORD, 5P | |
| EC9 | PQZZ5K6Z | EXTENSION CORD, 5P | |
| EC10 | PQZZ8K18Z | EXTENSION CORD, 8P | |
| EC11 | PQZZ4K5Z | EXTENSION CORD, 4P | |
| EC12 | PQZZ4K5Z | EXTENSION CORD, 4P | |
| EC13 | PQZZ6K7Z | EXTENSION CORD, 6P | |
| | KM79811245C0 | BASIC FACSIMILE TECHNIQUE (for training service technicians) | |

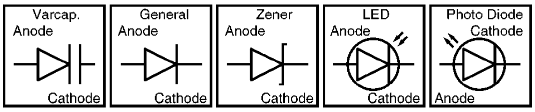
**Note:**
**Tools and Extension Cords are useful for servicing.**
**(They make servicing easy.)**

# 13. FOR THE SCHEMATIC DIAGRAMS

**Note:**

1. **DC voltage measurements are taken with an oscilloscope or a tester with a ground.**
2. **The schematic diagrams and circuit board may be modified at any**

**time with the development of new technology.**


Varcap.
Anode
Cathode
General
Anode
Cathode
Zener
Anode
Cathode
LED
Anode
Cathode
Photo Diode
Cathode
Anode

Important safety notice
Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only the manufacturer's specified parts.

# 14. SCHEMATIC DIAGRAM

## 14.1. DIGITAL BOARD (PCB1)

# 15. SCHEMATIC DIAGRAM

## 15.1. ANALOG BOARD (PCB2)

## 15.2. OPERATION BOARD (PCB3)

## 15.3. HIGH VOLTAGE POWER SUPPLY BOARD (PCB4)

## 15.4. LOW VOLTAGE POWER SUPPLY BOARD (PCB5)

## 15.5. MOTOR DRIVE BOARD (PCB6)

## 15.6. SENSOR BOARD (PCB7)

## 15.7. VARISTOR BOARD (PCB8)

## 15.8. ADF RELAY BOARD (PCB9)

## 15.9. PF SENSOR BOARD (PCB10)

## 15.10. CIS RELAY BOARD (PCB11)

## 15.11. CIS SENSOR BOARD (PCB12)

## 15.12. SCAN MOTOR DRIVER BOARD (PCB13)

# 16. PRINTED CIRCUIT BOARD

## 16.1. DIGITAL BOARD (PCB1)

### 16.1.1. DIGITAL BOARD: COMPONENT VIEW

### 16.1.2. DIGITAL BOARD: BOTTOM VIEW

## 16.2. ANALOG BOARD (PCB2)

#### 16.2.1. ANALOG BOARD: COMPONENT VIEW

#### 16.2.2. ANALOG BOARD: BOTTOM VIEW

### 16.3. OPERATION BOARD (PCB3)

#### 16.3.1. OPERATION BOARD:COMPONENT VIEW

#### 16.3.2. OPERATION BOARD:BOTTOM VIEW

### 16.4. HIGH VOLTAGE POWER SUPPLY BOARD (PCB4)

#### 16.4.1. COMPONENT VIEW

#### 16.4.2. BOTTOM VIEW

### 16.5. LOW VOLTAGE POWER SUPPLY BOARD (PCB5)

#### 16.5.1. COMPONENT VIEW

#### 16.5.2. BOTTOM VIEW

### 16.6. MOTOR DRIVE BOARD (PCB6)

### 16.7. SENSOR BOARD (PCB7)

### 16.8. VARISTOR BOARD (PCB8)

### 16.9. ADF RELAY BOARD (PCB9)

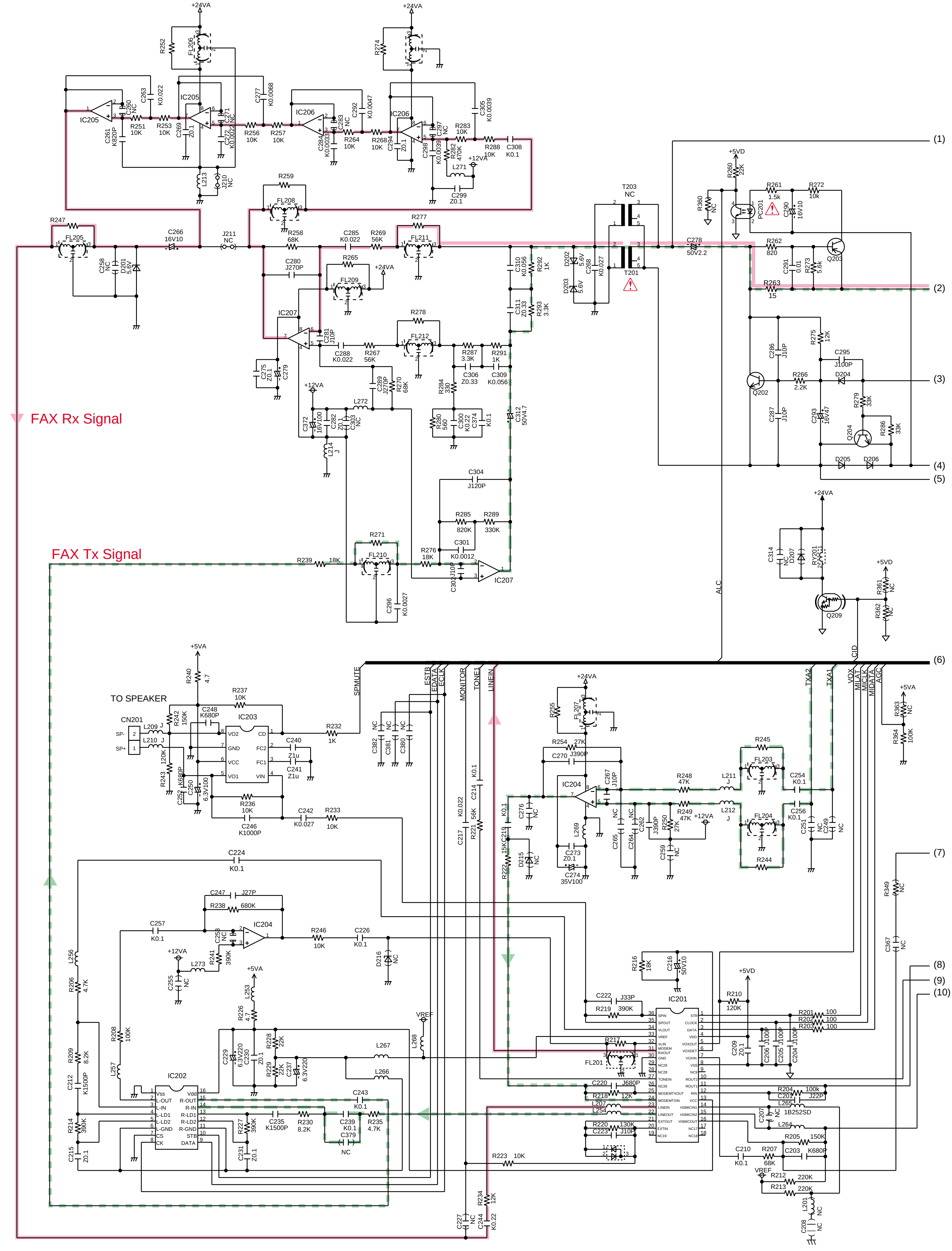
### 16.10. PF SENSOR BOARD (PCB10)

### 16.11. CIS RELAY BOARD (PCB11)

### 16.12. CIS SENSOR BOARD (PCB12)

### 16.13. SCAN MOTOR DRIVER BOARD (PCB13)

**HI(Q) / KXFLB756AL**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FAX Tx Signal
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SP-
SP+
+24VA
+5VA
+12VA
+5VD
VREF
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IC202
IC203
IC204
IC205
IC206
IC207
T201
T203
NC
FL201
FL203
FL204
FL205
FL206
FL207
FL208
FL209
FL210
FL211
FL212
Q202
Q203
Q204
Q209
PC201
RY201
J211
ALC
CID
SPMUTE
ESTB
EDATA
ECLK
MONITOR
TONE1
LINEIN
TXA2
TXA1
VOX
MILAT
MICLK
MIDATA
AGC
(1)
(2)
(3)
(4)
(5)
(6)
(7)
(8)
(9)
(10)
VO2
GND
VCC
VO1
CD
FC2
FC1
VIN
Vss
L-OUT
L-IN
L-LD1
L-LD2
L-GND
CS
CK
Vdd
R-OUT
R-IN
R-LD1
R-LD2
R-GND
STB
DATA
SPIN
SPOUT
VLOUT
VREF
VLIN
MODEM
RXOUT
GND
NC29
NC28
TONEIN
NC26
MODEMTXOUT
MODEMTXIN
LINEIN
LINEOUT
EXTOUT
EXTIN
NC19
STB
CLOCK
DATA
VDD
VOXOUT
VOXDET
VOXIN
VSS
NC9
ROUT2
ROUT1
RIN
VCC
HSMICIN1
HSMICIN2
HSMICOUT
NC17
NC18
R247
C266 16V10
D201 5.6V
C258 NC
R252
R274
R251 10K
R253 10K
C260 NC
C263 K0.022
C261 K820P
C269 Z0.1
C271 NC
C272 K0.0022
C277 K0.0068
R256 10K
R257 10K
C283 NC
C284 K0.0033
R264 10K
C292 K0.0047
R268 10K
C294 Z0.1
C297 NC
C298 K0.0039
R282 470K
R283 10K
C305 K0.0039
R288 10K
C308 K0.1
L271
C299 Z0.1
L213
J210 NC
R259
R258 68K
C285 K0.022
R269 56K
R277
C280 J270P
R265
C281 J10P
C288 K0.022
R267 56K
C275 Z0.1
C279
R278
R287 3.3K
R291 1K
C306 Z0.33
C309 K0.056
C289 J270P
R270 68K
R284 330
R280 560
C300 K0.22
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C282 Z0.1
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L272
L214 J
C310 K0.056
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C311 Z0.33
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C312 50V4.7
C304 J120P
R285 820K
R289 330K
C301 K0.0012
R276 18K
C302 J10P
R271
R239 18K
C296 K0.0027
D202 5.6V
D203 5.6V
C268 K0.027
C278 50V2.2
R360 NC
R260 22K
R261 1.5k
R272 10K
C290 16V10
R262 820
C291 0.01
R273 5.6K
R263 15
C286 J10P
R275 12K
C295 J100P
R266 2.2K
D204
R279 33K
C287 J10P
C293 16V47
R286 33K
D205
D206
C314 NC
D207 NC
R361 NC
R362 NC
R240 4.7
R237 10K
C248 K680P
R242 150K
L209 J
L210 J
R243 120K
C252 K680P
C250 6.3V100
R232 1K
C240 Z1u
C241 Z1u
R236 10K
C246 K1000P
C242 K0.027
R233 10K
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C381 NC
C380 NC
C224 K0.1
C247 J27P
R238 680K
C257 K0.1
C253 NC
R246 10K
C226 K0.1
D216 NC
R241 390K
L273
C255 NC
L256
R206 4.7K
R208 100K
L257
R209 8.2K
C212 K1500P
R214 390K
C215 Z0.1
L253
R226 4.7
C229 6.3V220
C230 Z0.1
R228 22K
R229 22K
C237 6.3V220
L267
L266
L268
C243 K0.1
R227 390K
C231 Z0.1
C235 K1500P
R230 8.2K
C239 K0.1
C379 NC
R235 4.7K
C217 K0.022
R221 56K
C214 K0.1
C219 K0.1
R222 15K
D215 NC
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R254 27K
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C276 NC
L269
C273 Z0.1
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C265 NC
C264 NC
C262 J390P
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C259 NC
R248 47K
R249 47K
L211 J
L212 J
R245
R244
C254 K0.1
C256 K0.1
C251 NC
C249 NC
R363 NC
R364 100K
R216 18K
C216 50V10
C222 J33P
R219 390K
R217
C220 J680P
R218 12K
L207
L254
R220 130K
C223 J10P
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R234 12K
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R202 100
R203 100
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C206 J100P
C205 J100P
C204 J100P
R204 100k
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1B252SD
C207 NC
L264
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C210 K0.1
R207 68K
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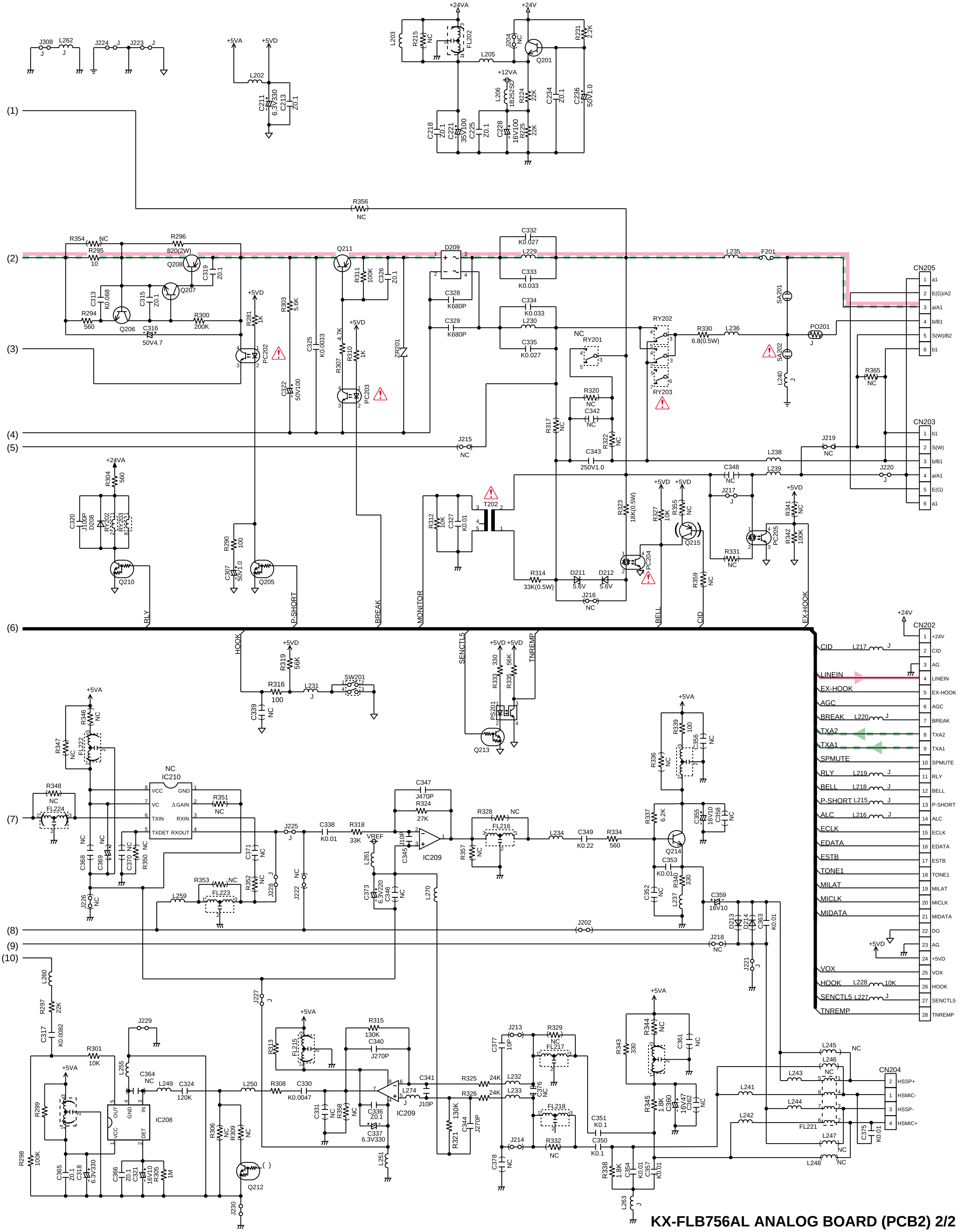
## KX-FLB756AL ANALOG BOARD (PCB2) 1/2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J224
J223
+5VA
+5VD
L202
C211
6.3V330
C213
Z0.1
+24VA
+24V
L203
R215
NC
FL202
L205
J204
Q201
R231
2.2K
+12VA
L206
1B252SD
R224
22K
C234
Z0.1
C236
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C218
Z0.1
C221
35V100
C225
Z0.1
C228
16V100
R225
22K
R356
NC
R354
R295
10
R296
820(2W)
Q208
C319
Z0.1
Q211
D209
C332
K0.027
L229
C333
K0.033
L235
F201
CN205
a1
E(G)/A2
a/A1
b/B1
S(W)/B2
b1
C313
K0.068
R294
560
Q206
C315
Z0.1
Q207
C316
50V4.7
R300
200K
R303
5.6K
R311
100K
C326
Z0.1
C328
K680P
C329
K680P
C334
K0.033
L230
C335
K0.027
RY202
R330
6.8(0.5W)
L236
SA201
PO201
SA202
L240
RY201
RY203
R281
1K
PC202
C325
K0.0033
C322
50V100
R307
4.7K
R310
1K
PC203
ZR201
R320
C342
R317
R322
C343
250V1.0
R365
CN203
b1
S(W)
b/B1
a/A1
E(G)
a1
J215
L238
J219
C348
L239
J220
+24VA
R304
560
C320
J100P
D208
RY202
RY203
R290
100
C307
50V1.0
Q210
Q205
T202
R312
10K
C327
K0.01
R323
18K(0.5W)
R327
10K
R355
Q215
J217
R341
R342
100K
PC205
R331
PC204
R314
33K(0.5W)
D211
5.6V
D212
5.6V
J216
R359
RLY
P-SHORT
BREAK
MONITOR
BELL
CID
EX-HOOK
HOOK
SENCTL5
TNREMP
R319
56K
R316
100
L231
SW201
C339
R333
330
R335
56K
PS201
Q213
CN202
+24V
CID
AG
LINEIN
EX-HOOK
AGC
BREAK
TXA2
TXA1
SPMUTE
RLY
BELL
P-SHORT
ALC
ECLK
EDATA
ESTB
TONE1
MILAT
MICLK
MIDATA
DG
AG
+5VD
VOX
HOOK
SENCTL5
TNREMP
L217
L220
L219
L218
L215
L216
L228
10K
L227
R346
R347
FL222
R348
FL224
IC210
VCC
GND
VC
ΔGAIN
TXIN
RXIN
TXDET
RXOUT
R351
C368
C369
C370
R350
C371
R353
FL223
L259
R352
J228
J222
J226
J225
C338
K0.01
R318
33K
VREF
C347
J470P
R324
27K
IC209
C345
J10P
L261
C373
6.3V220
C346
L270
R328
FL216
R357
L234
C349
K0.22
R334
560
R336
R339
100
C356
R337
6.2K
C355
16V10
C358
Q214
C353
K0.01
R340
330
C352
L237
C359
16V10
D213
D214
C363
K0.01
J202
J218
J221
L260
R297
22K
C317
K0.0082
R301
10K
R299
L255
J229
C364
L249
C324
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IC208
OUT
GND
IN
VCC
DET
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C365
C318
6.3V330
C366
C321
16V10
R305
1M
R306
R309
Q212
J230
J227
R313
FL215
L250
R308
C330
K0.0047
C331
R358
R315
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C340
J270P
C336
C337
6.3V330
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J10P
C341
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130K
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L251
C377
10P
J213
R329
FL217
C376
FL218
C378
J214
R332
C351
K0.1
C350
K0.1
R338
1.8K
C354
K0.01
C357
K0.01
L263
R343
330
R344
C361
R345
1.8K
C360
16V47
C362
L245
L246
L243
L241
L244
L242
FL221
L247
L248
CN204
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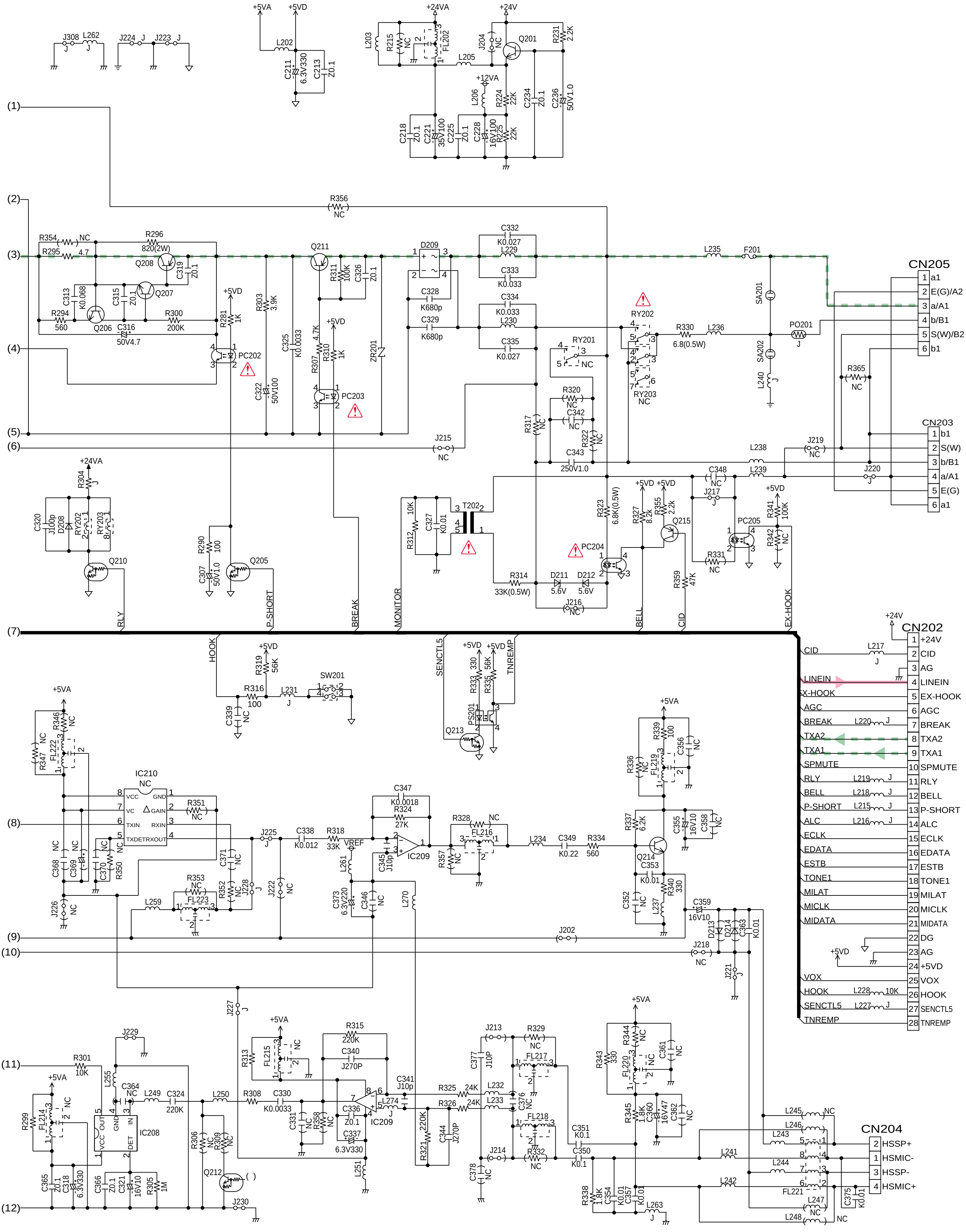
HSMIC-
HSSP-
HSMIC+
C375
K0.01

## KX-FLB756AL ANALOG BOARD (PCB2) 2/2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2 E(G)/A2
3 a/A1
4 b/B1
5 S(W)/B2
6 b1
CN203
1 b1
2 S(W)
3 b/B1
4 a/A1
5 E(G)
6 a1
CN202
1 +24V
2 CID
3 AG
4 LINEIN
5 EX-HOOK
6 AGC
7 BREAK
8 TXA2
9 TXA1
10 SPMUTE
11 RLY
12 BELL
13 P-SHORT
14 ALC
15 ECLK
16 EDATA
17 ESTB
18 TONE1
19 MILAT
20 MICLK
21 MIDATA
22 DG
23 AG
24 +5VD
25 VOX
26 HOOK
27 SENCTL5
28 TNREMP
CN204
2 HSSP+
1 HSMIC-
3 HSSP-
4 HSMIC+
(1)
(2)
(3)
(4)
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(9)
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BREAK
MONITOR
BELL
CID
EX-HOOK
HOOK
SENCTL5
TNREMP
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IC209
IC208
T202
RY201
RY202
RY203
PC202
PC203
PC204
PC205
PS201
SW201
FL221
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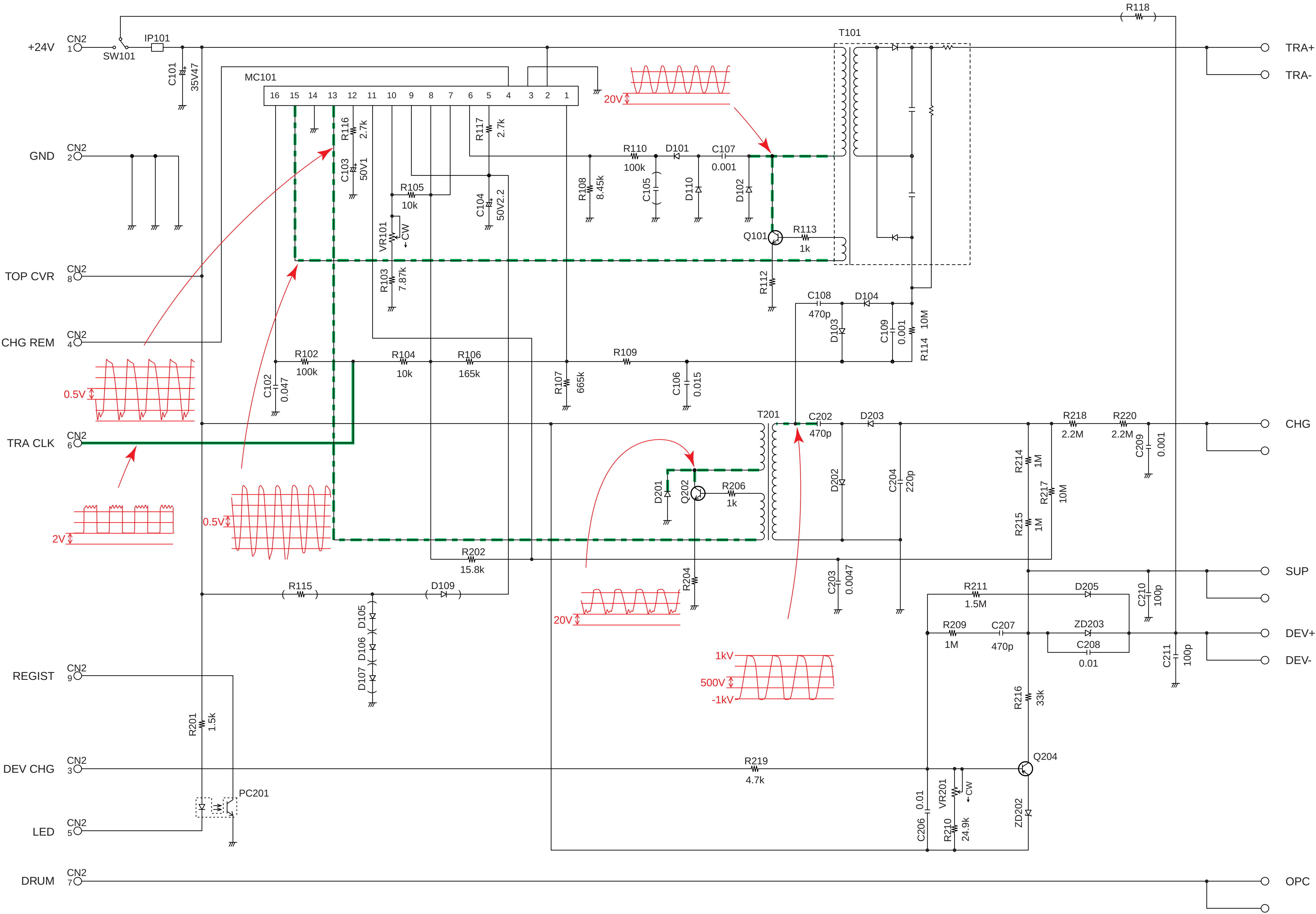
+24V
+5VA
+5VD
+12VA

KX-FLB758EX : ANALOG BOARD 2/2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CN2
1
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SW101
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35V47
T101
TRA+
TRA-
MC101
16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
20V
GND
CN2
2
R116
2.7k
R117
2.7k
R110
100k
D101
C107
0.001
C103
50V1
R105
10k
R108
8.45k
C105
D110
D102
C104
50V2.2
VR101
CW
Q101
R113
1k
TOP CVR
CN2
8
R103
7.87k
R112
C108
470p
D104
D103
C109
0.001
10M
R114
CHG REM
CN2
4
R102
100k
R104
10k
R106
165k
R109
0.5V
C102
0.047
R107
665k
C106
0.015
T201
C202
470p
D203
R218
2.2M
R220
2.2M
CHG
C209
0.001
TRA CLK
CN2
6
R214
1M
D201
Q202
R206
1k
D202
C204
220p
R217
10M
2V
0.5V
R215
1M
R202
15.8k
C203
0.0047
R204
SUP
R115
D109
D105
R211
1.5M
D205
C210
100p
20V
R209
1M
C207
470p
ZD203
C208
0.01
DEV+
DEV-
D106
D107
1kV
500V
-1kV
C211
100p
REGIST
CN2
9
R216
33k
R201
1.5k
DEV CHG
CN2
3
R219
4.7k
Q204
PC201
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ZD202
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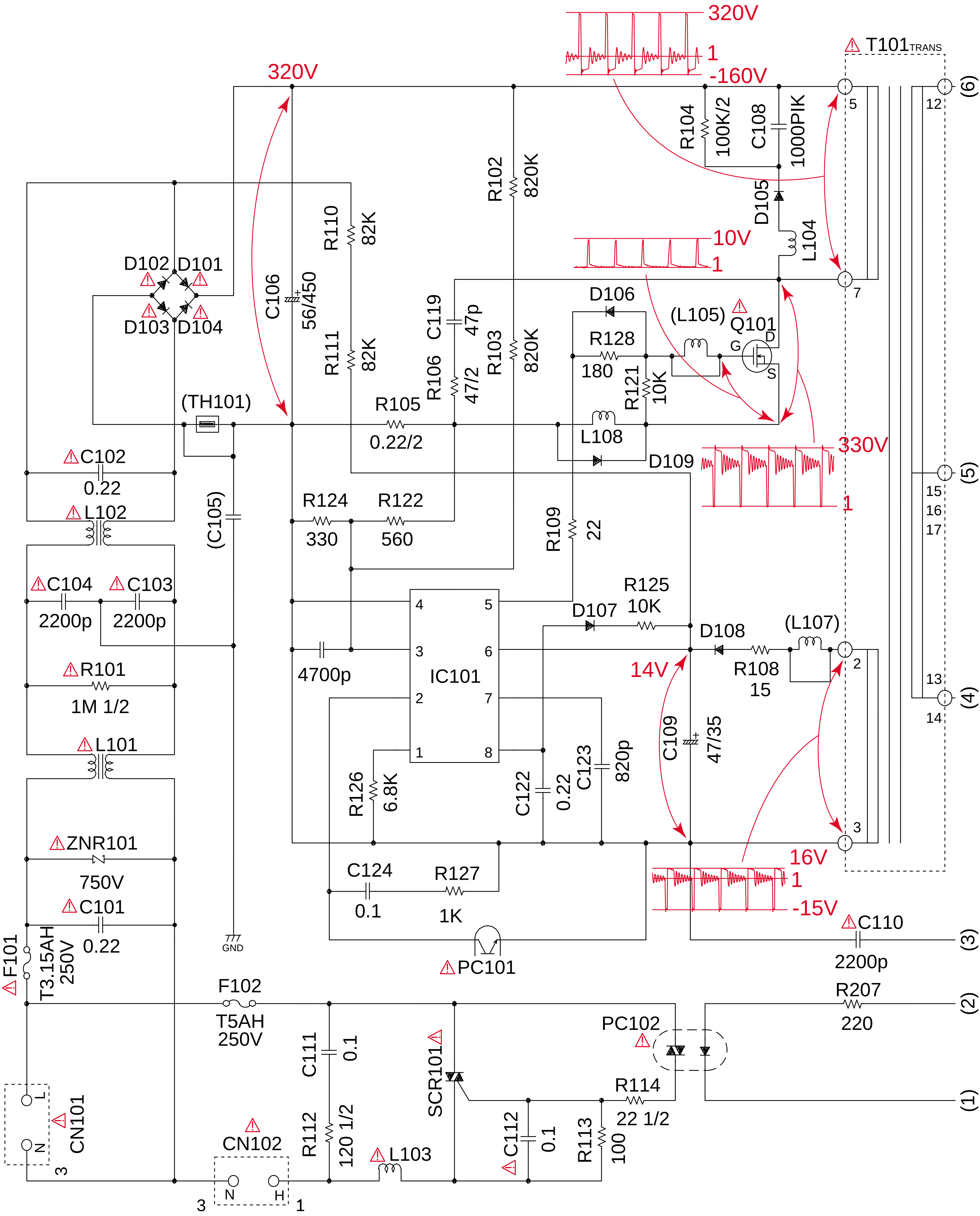
R210
24.9k
LED
CN2
5
DRUM
CN2
7
OPC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-160V
320V
⚠ T101TRANS
(6)
5
12
R104
100K/2
C108
1000PIK
R102
820K
D105
L104
10V
1
7
R110
82K
D102
D101
D103
D104
C106
56/450
R111
82K
C119
47p
R106
47/2
R103
820K
D106
(L105)
Q101
R128
180
G
D
S
R121
10K
(TH101)
R105
0.22/2
L108
D109
330V
1
(5)
15
16
17
C102
0.22
L102
(C105)
R124
330
R122
560
R109
22
C104
2200p
C103
2200p
R125
10K
D107
D108
(L107)
4
5
3
6
2
7
1
8
IC101
4700p
14V
R108
15
2
13
(4)
14
R101
1M 1/2
L101
C109
47/35
R126
6.8K
C122
0.22
C123
820p
3
ZNR101
750V
C101
0.22
C124
0.1
R127
1K
16V
1
-15V
C110
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F101
T3.15AH
250V
GND
PC101
F102
T5AH
250V
R207
220
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PC102
C111
0.1
SCR101
R114
22 1/2
(1)
L
N
CN101
3
R112
120 1/2
C112
0.1
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L103
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H
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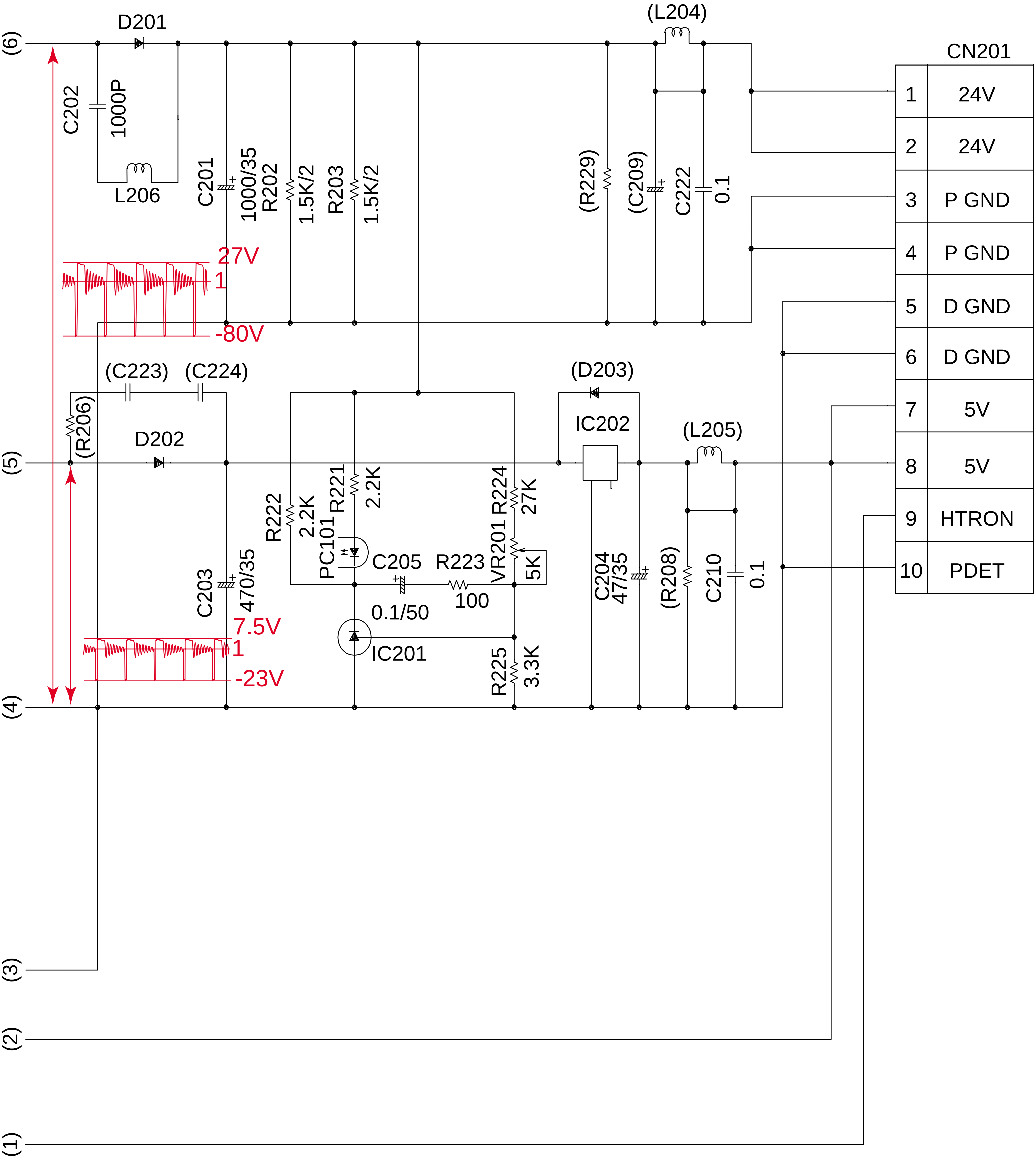
1

**KX-FLB756AL LOW VOLTAGE POWER SUPPLY BOARD (PCB5) 1/2**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R203
1.5K/2
(L204)
(R229)
(C209)
C222
0.1
CN201
1
24V
2
24V
3
P GND
4
P GND
5
D GND
6
D GND
7
5V
8
5V
9
HTRON
10
PDET
27V
1
-80V
(C223)
(C224)
(R206)
D202
(D203)
IC202
(L205)
R222
2.2K
R221
2.2K
PC101
R224
27K
VR201
5K
C205
0.1/50
R223
100
IC201
R225
3.3K
C203
470/35
7.5V
1
-23V
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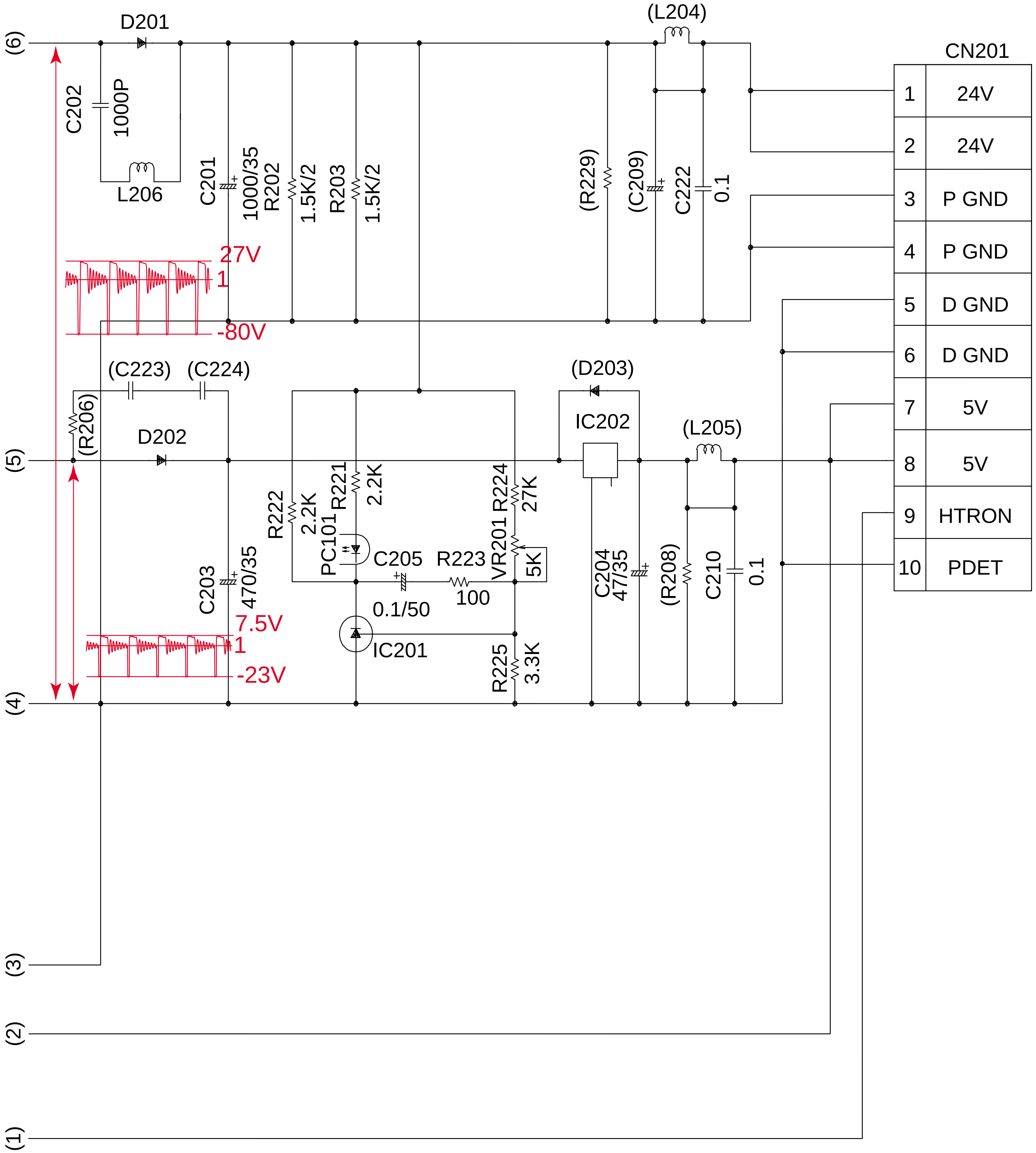
47/35
(R208)
C210
0.1

**KX-FLB756AL LOW VOLTAGE POWER SUPPLY BOARD (PCB5) 2/2**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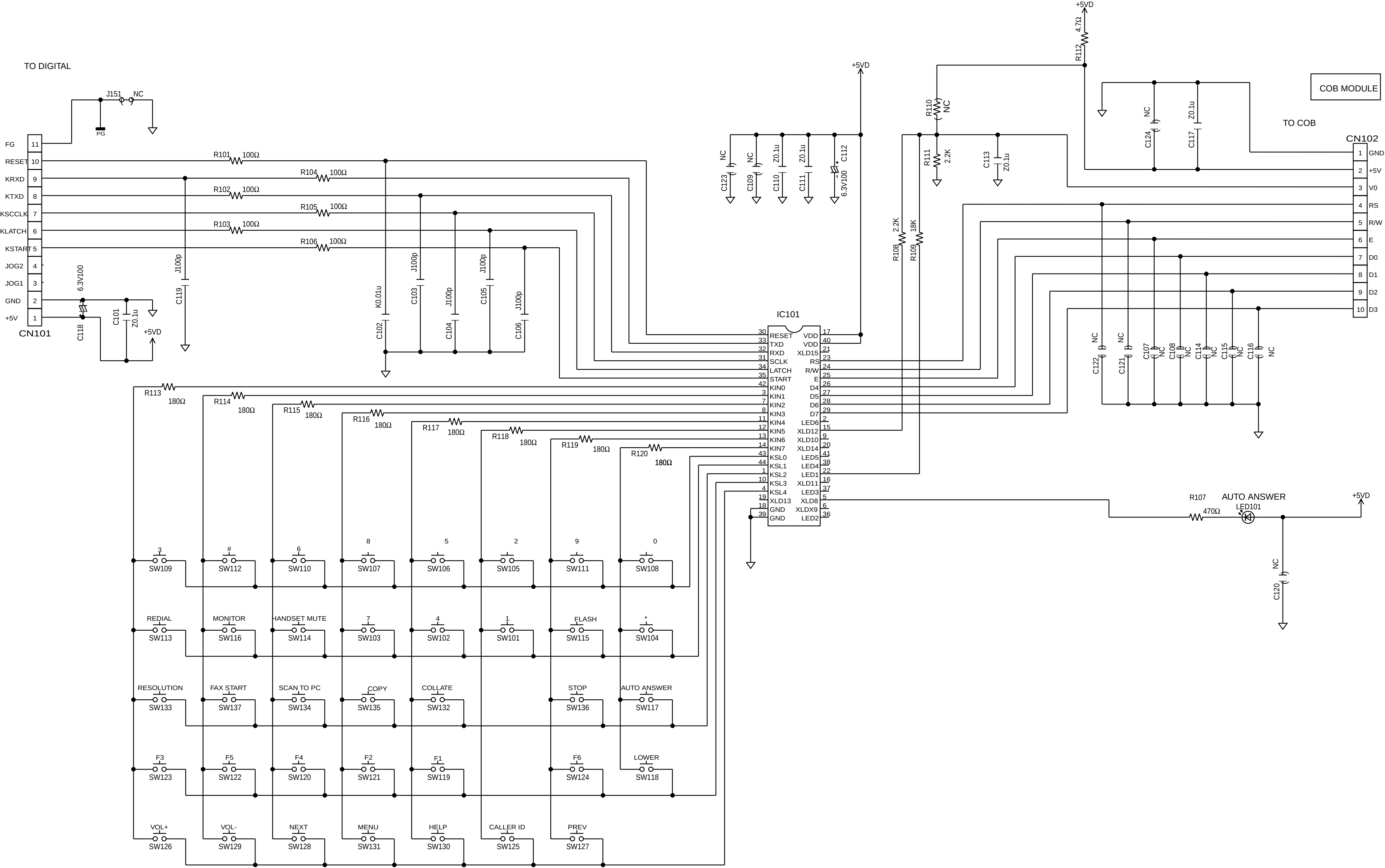
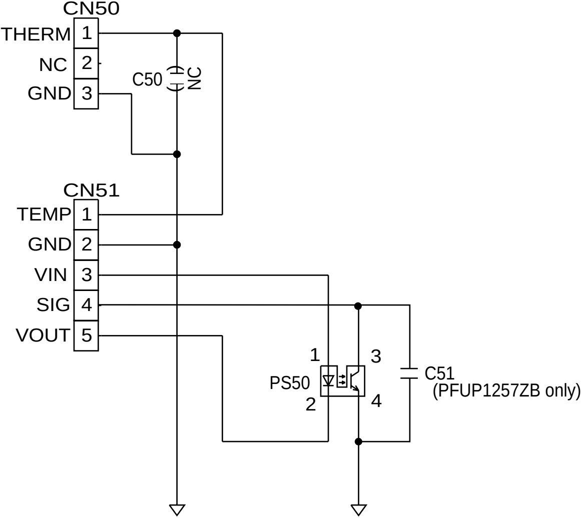
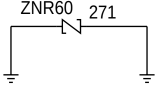
C202
1000P
L206
C201
1000/35
R202
1.5K/2
R203
1.5K/2
(L204)
(R229)
(C209)
C222
0.1
CN201
1
24V
2
24V
3
P GND
4
P GND
5
D GND
6
D GND
7
5V
8
5V
9
HTRON
10
PDET
27V
1
-80V
(C223)
(C224)
(R206)
D202
(5)
(D203)
IC202
(L205)
R222
2.2K
R221
2.2K
PC101
R224
27K
VR201
5K
C205
R223
0.1/50
100
C203
470/35
7.5V
1
-23V
IC201
R225
3.3K
C204
47/35
(R208)
C210
0.1
(4)
(3)
(2)
(1)

KX-FLB758EX LOW VOLTAGE POWER SUPPLY BOARD (PCB5) 2/2

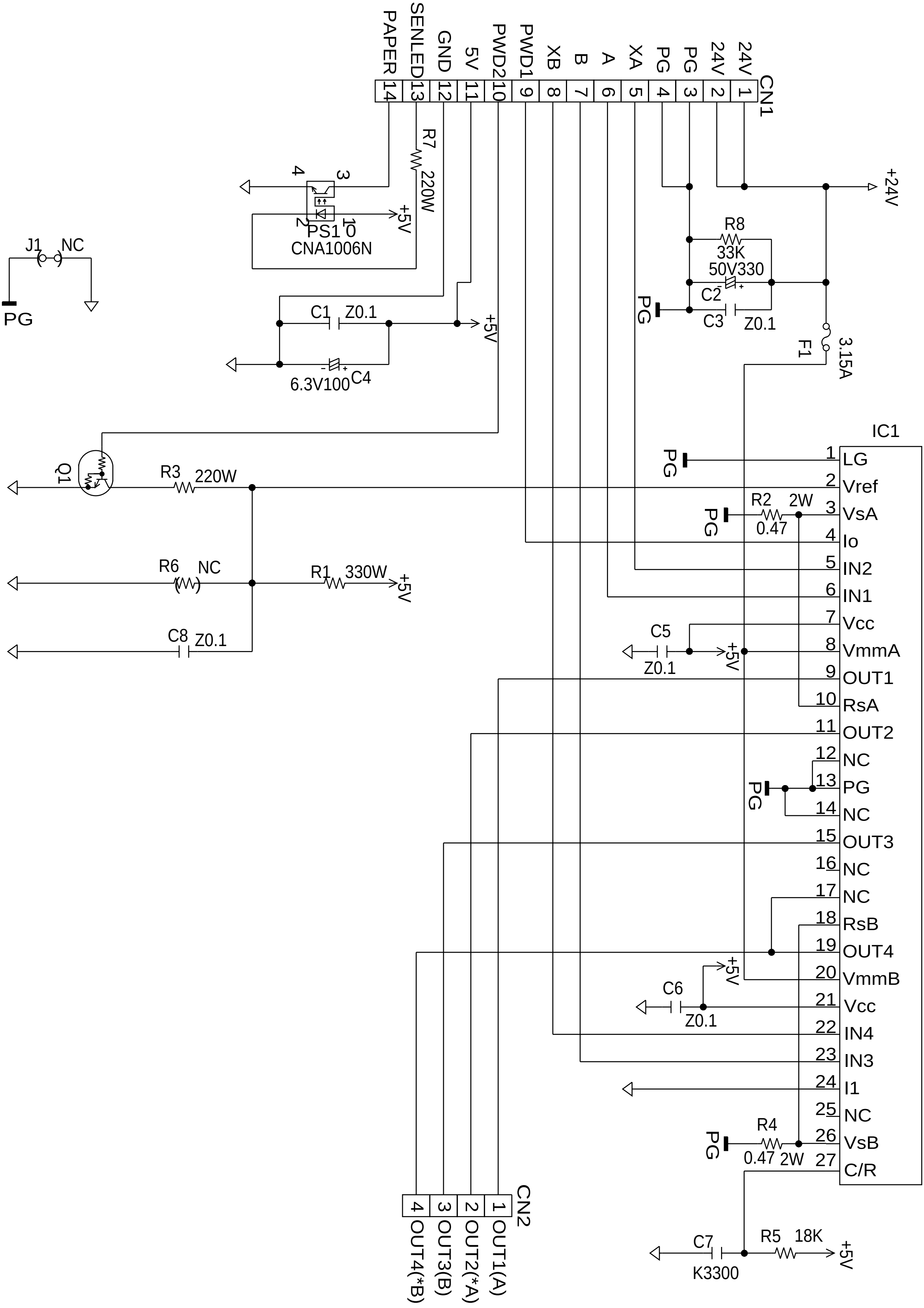

TO DIGITAL
J151
NC
PG
FG
RESET
KRXD
KTXD
KSCCLK
KLATCH
KSTART
JOG2
JOG1
GND
+5V
11
10
9
8
7
6
5
4
3
2
1
CN101
6.3V100
C118
C101
Z0.1u
+5VD
R101 100Ω
R104 100Ω
R102 100Ω
R105 100Ω
R103 100Ω
R106 100Ω
J100p
C119
K0.01u
C102
J100p
C103
J100p
C104
J100p
C105
J100p
C106
+5VD
NC
C123
NC
C109
Z0.1u
C110
Z0.1u
C111
C112
6.3V100
+5VD
4.7Ω
R112
R110
NC
R111
2.2K
C113
Z0.1u
NC
C124
Z0.1u
C117
COB MODULE
TO COB
CN102
1 GND
2 +5V
3 V0
4 RS
5 R/W
6 E
7 D0
8 D1
9 D2
10 D3
R108 2.2K
R109 18K
IC101
30 RESET
33 TXD
32 RXD
31 SCLK
34 LATCH
35 START
42 KIN0
3 KIN1
7 KIN2
8 KIN3
11 KIN4
12 KIN5
13 KIN6
14 KIN7
43 KSL0
44 KSL1
1 KSL2
10 KSL3
4 KSL4
19 XLD13
18 GND
39 GND
VDD 17
VDD 40
XLD15 21
RS 23
R/W 24
E 25
D4 26
D5 27
D6 28
D7 29
LED6 2
XLD12 15
XLD10 9
XLD14 20
LED5 41
LED4 38
LED1 22
XLD11 16
LED3 37
XLD8 5
XLDX9 6
LED2 36
NC C122
NC C121
C107 NC
C108 NC
C114 NC
C115 NC
C116 NC
R113 180Ω
R114 180Ω
R115 180Ω
R116 180Ω
R117 180Ω
R118 180Ω
R119 180Ω
R120 180Ω
R107
470Ω
AUTO ANSWER
LED101
+5VD
NC
C120
3 SW109
# SW112
6 SW110
8 SW107
5 SW106
2 SW105
9 SW111
0 SW108
REDIAL SW113
MONITOR SW116
HANDSET MUTE SW114
7 SW103
4 SW102
1 SW101
FLASH SW115
* SW104
RESOLUTION SW133
FAX START SW137
SCAN TO PC SW134
COPY SW135
COLLATE SW132
STOP SW136
AUTO ANSWER SW117
F3 SW123
F5 SW122
F4 SW120
F2 SW121
F1 SW119
F6 SW124
LOWER SW118
VOL+ SW126
VOL- SW129
NEXT SW128
MENU SW131
HELP SW130
CALLER ID SW125
PREV SW127


CN50
THERM
1
NC
2
GND
3
C50
NC
CN51
TEMP
1
GND
2
VIN
3
SIG
4
VOUT
5
1
3
PS50
2
4
C51
(PFUP1257ZB only)

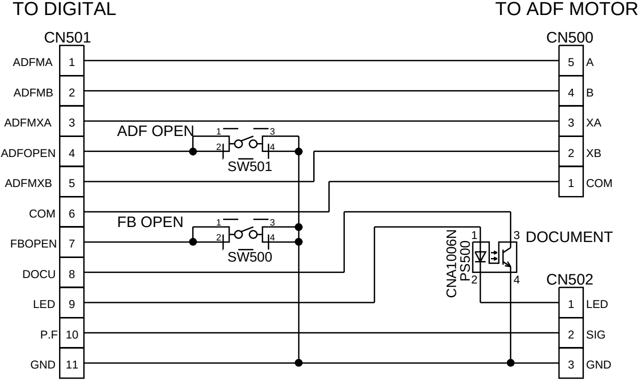
# KX-FLB756AL SENSOR BOARD (PCB7)



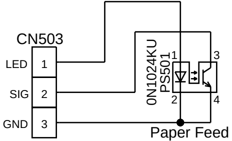
# KX-FLB756AL VARISTOR  BOARD (PCB8)


CN1
1 24V
2 24V
3 PG
4 PG
5 XA
6 A
7 B
8 XB
9 PWD1
10 PWD2
11 5V
12 GND
13 SENLED
14 PAPER
R7
220W
PS1
CNA1006N
+5V
+24V
R8
33K
C2
50V330
C3
Z0.1
PG
F1
3.15A
J1
NC
C1
Z0.1
C4
6.3V100
Q1
R3
220W
R6
NC
R1
330W
C8
Z0.1
IC1
1 LG
2 Vref
3 VsA
4 Io
5 IN2
6 IN1
7 Vcc
8 VmmA
9 OUT1
10 RsA
11 OUT2
12 NC
13 PG
14 NC
15 OUT3
16 NC
17 NC
18 RsB
19 OUT4
20 VmmB
21 Vcc
22 IN4
23 IN3
24 I1
25 NC
26 VsB
27 C/R
R2
0.47
2W
C5
Z0.1
C6
Z0.1
R4
0.47
2W
C7
K3300
R5
18K
CN2
1 OUT1(A)
2 OUT2(*A)
3 OUT3(B)
4 OUT4(*B)

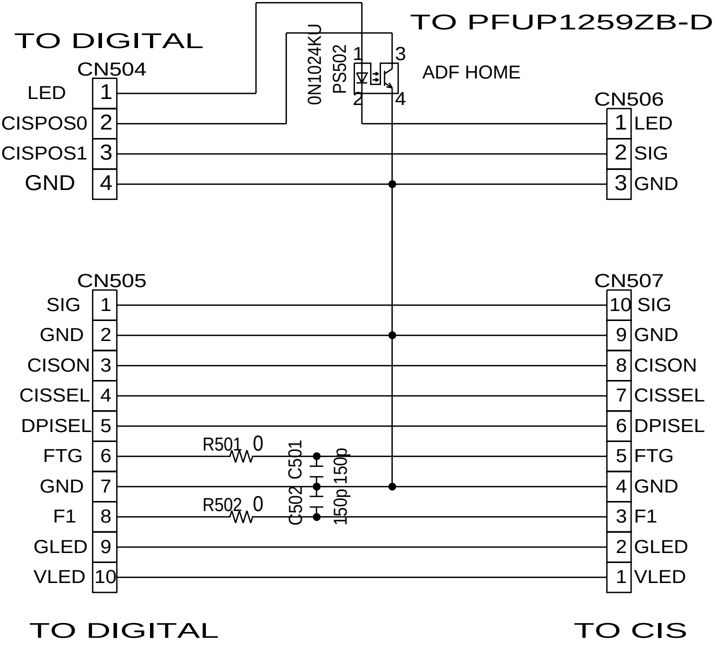
**KX-FLB756AL MOTOR DRIVE BOARD (PCB6)**


TO DIGITAL
TO ADF MOTOR
CN501
CN500
ADFMA
1
ADFMB
2
ADFMXA
3
ADFOPEN
4
ADFMXB
5
COM
6
FBOPEN
7
DOCU
8
LED
9
P.F
10
GND
11
5 A
4 B
3 XA
2 XB
1 COM
ADF OPEN
SW501
FB OPEN
SW500
1
2
3
4
CNA1006N
PS500
DOCUMENT
CN502
1 LED
2 SIG
3 GND

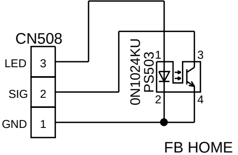
# KX-FLB756AL ADF RELAY BOARD (PCB9)


CN503
LED
1
SIG
2
GND
3
0N1024KU
PS501
1
2
3
4
Paper Feed

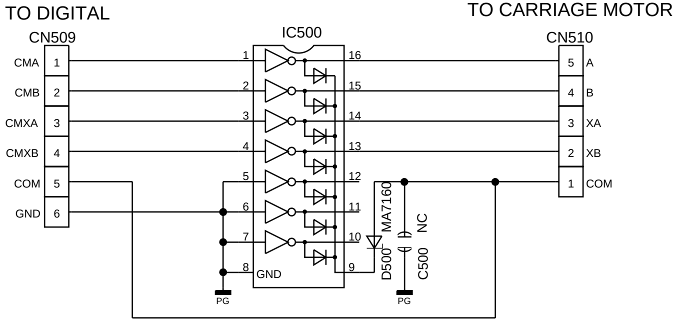
# KX-FLB756AL PF SENSOR BOARD (PCB10)


TO DIGITAL
CN504
LED 1
CISPOS0 2
CISPOS1 3
GND 4
0N1024KU
PS502
1
2
3
4
ADF HOME
TO PFUP1259ZB-D
CN506
1 LED
2 SIG
3 GND
CN505
SIG 1
GND 2
CISON 3
CISSEL 4
DPISEL 5
FTG 6
GND 7
F1 8
GLED 9
VLED 10
R501 0
R502 0
C501 150p
C502 150p
CN507
10 SIG
9 GND
8 CISON
7 CISSEL
6 DPISEL
5 FTG
4 GND
3 F1
2 GLED
1 VLED
TO DIGITAL
TO CIS

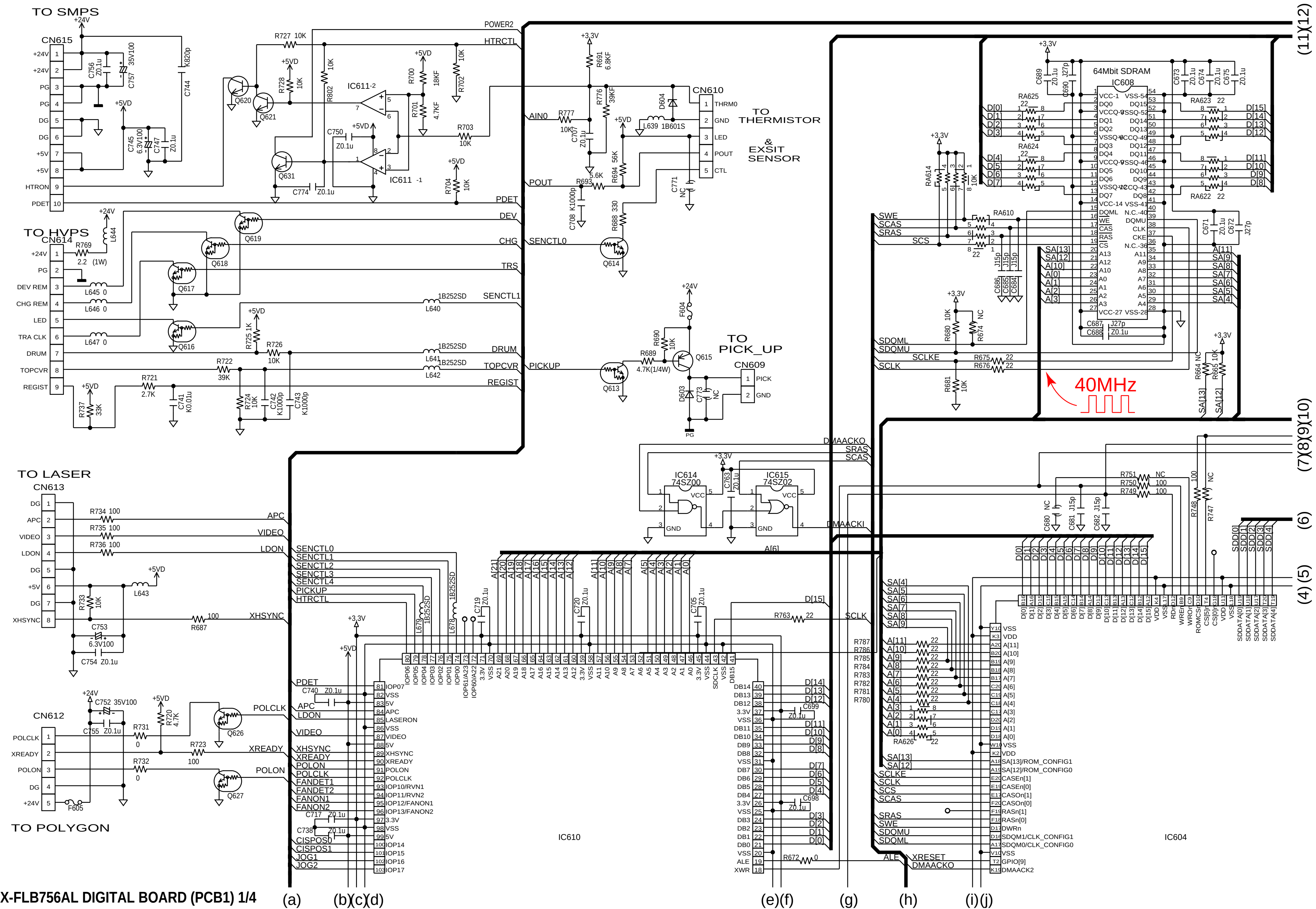
**KX-FLB756AL CIS RELAY BOARD (PCB11)**


CN508
LED
SIG
GND
3
2
1
0N1024KU
PS503
1
2
3
4
FB HOME

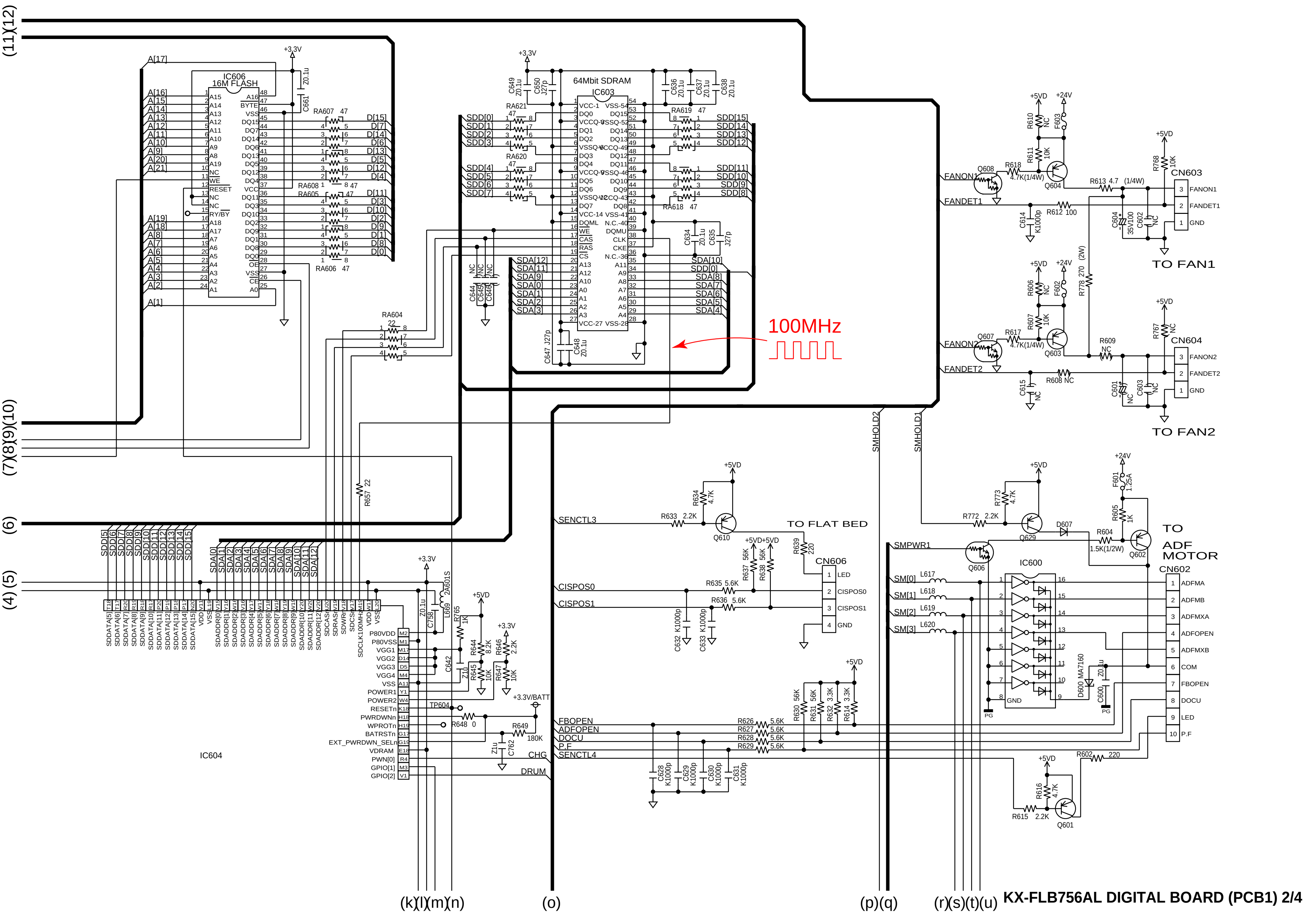
# KX-FLB756AL CIS SENSOR BOARD (PCB12)


TO DIGITAL
CN509
CMA
CMB
CMXA
CMXB
COM
GND
1
2
3
4
5
6
IC500
1
2
3
4
5
6
7
8
GND
16
15
14
13
12
11
10
9
PG
MA7160
D500
NC
C500
PG
TO CARRIAGE MOTOR
CN510
5
4
3
2
1
A
B
XA
XB
COM

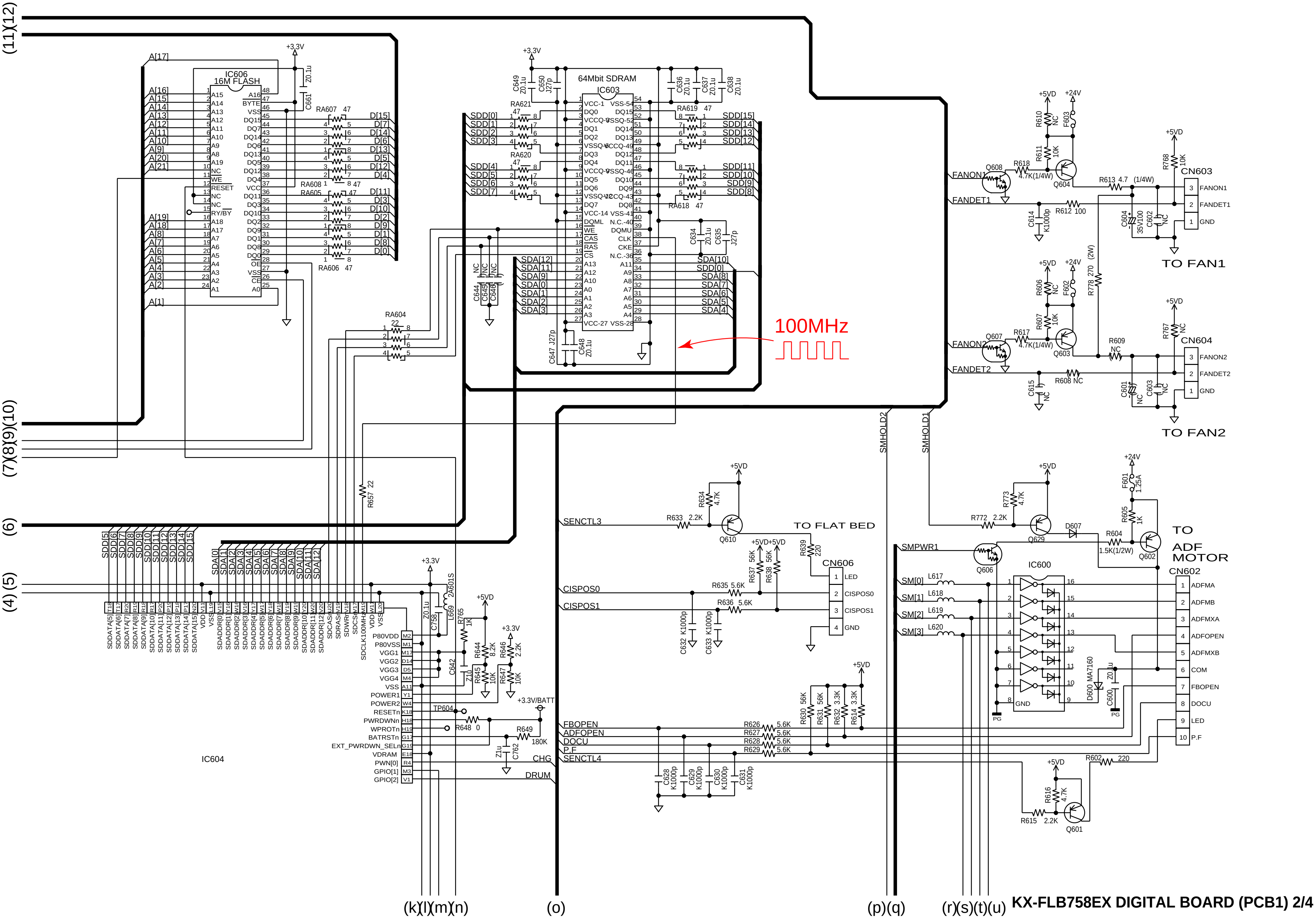
# KX-FLB756AL SCAN MOTOR DRIVER BOARD (PCB13)


TO SMPS
CN615
TO HVPS
CN614
TO LASER
CN613
CN612
TO POLYGON
CN610
TO THERMISTOR & EXSIT SENSOR
TO PICK_UP
CN609
IC611
IC614 74SZ00
IC615 74SZ02
64Mbit SDRAM
IC608
IC610
IC604
40MHz
POWER2
HTRCTL
PDET
DEV
CHG
TRS
SENCTL1
DRUM
TOPCVR
REGIST
AIN0
POUT
SENCTL0
PICKUP
APC
VIDEO
LDON
XHSYNC
POLCLK
XREADY
POLON
DMAACKO
DMAACKI
SWE
SCAS
SRAS
SCS
SDQML
SDQMU
SCLKE
SCLK
XRESET
ALE
(11)(12)
(7)(8)(9)(10)
(6)
(4)(5)
(a)
(b)(c)(d)
(e)(f)
(g)
(h)
(i)(j)

KX-FLB756AL DIGITAL BOARD (PCB1) 1/4

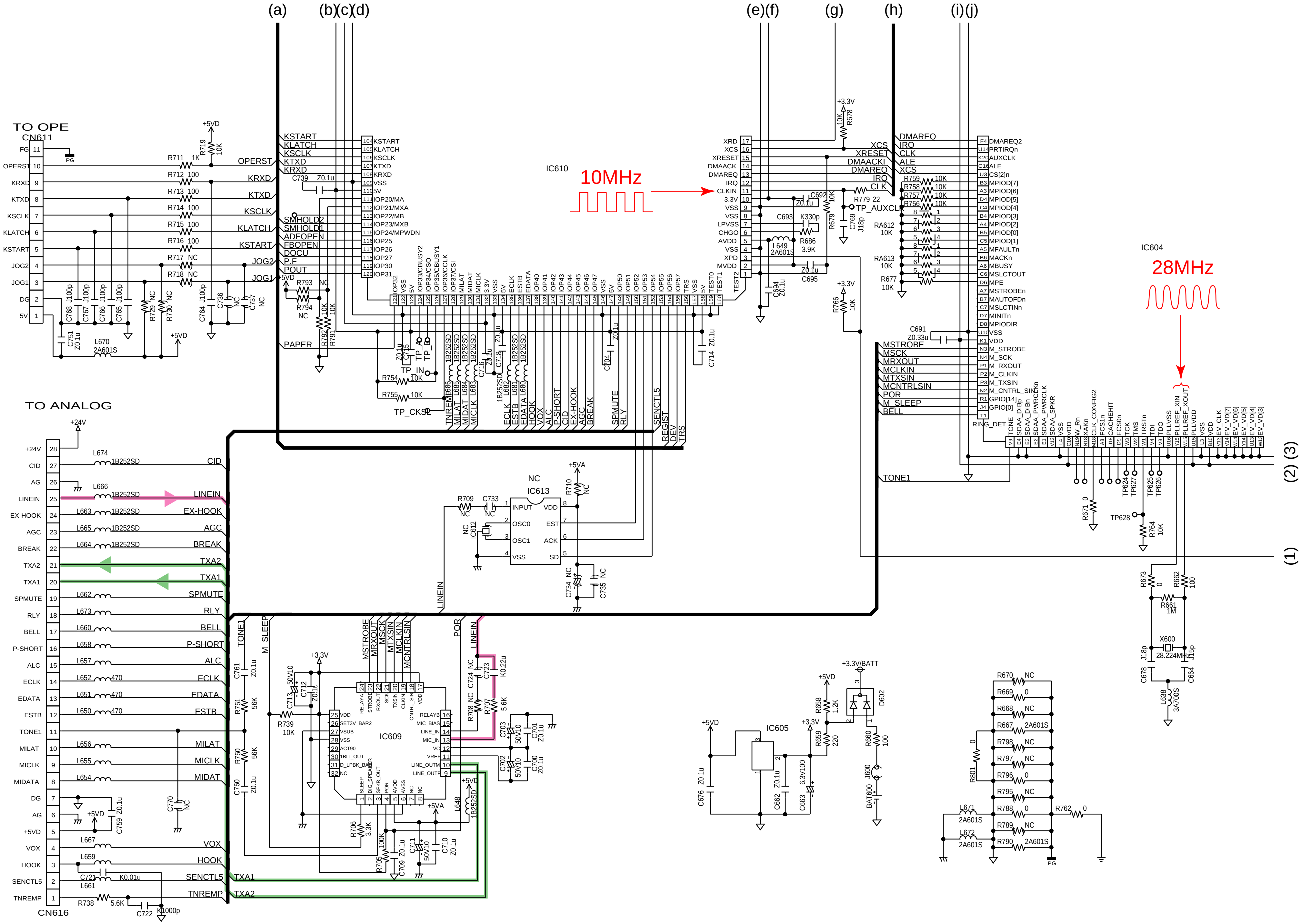

(11)(12)
(7)(8)(9)(10)
(6)
(4)(5)
IC606
16M FLASH
A[17]
A[16]
A[15]
A[14]
A[13]
A[12]
A[11]
A[10]
A[9]
A[20]
A[21]
A[19]
A[18]
A[8]
A[7]
A[6]
A[5]
A[4]
A[3]
A[2]
A[1]
+3.3V
C661
Z0.1u
RA607 47
RA608
RA605 47
RA606 47
D[15]
D[7]
D[14]
D[6]
D[13]
D[5]
D[12]
D[4]
D[11]
D[3]
D[10]
D[2]
D[9]
D[1]
D[8]
D[0]
64Mbit SDRAM
IC603
C649 Z0.1u
C650 J27p
C636 Z0.1u
C637 Z0.1u
C638 Z0.1u
RA621 47
RA620 47
RA619 47
RA618 47
SDD[0]
SDD[1]
SDD[2]
SDD[3]
SDD[4]
SDD[5]
SDD[6]
SDD[7]
SDD[15]
SDD[14]
SDD[13]
SDD[12]
SDD[11]
SDD[10]
SDD[9]
SDD[8]
SDA[12]
SDA[11]
SDA[9]
SDA[0]
SDA[1]
SDA[2]
SDA[3]
SDA[10]
SDD[0]
SDA[8]
SDA[7]
SDA[6]
SDA[5]
SDA[4]
C634 Z0.1u
C635 J27p
C644 NC
C645 NC
C646 NC
C647 J27p
C648 Z0.1u
RA604 22
100MHz
R657 22
FANON1
FANDET1
FANON2
FANDET2
Q608
Q604
Q607
Q603
R618 4.7K(1/4W)
R617 4.7K(1/4W)
R610 NC
R611 10K
R606 NC
R607 10K
F603
F602
+5VD
+24V
R613 4.7 (1/4W)
R612 100
R768 10K
R767 NC
R778 270 (2W)
R609 NC
R608 NC
C614 K1000p
C615 NC
C604 35V100
C602 NC
C601 NC
C603 NC
CN603
FANON1
FANDET1
GND
TO FAN1
CN604
FANON2
FANDET2
GND
TO FAN2
SMHOLD2
SMHOLD1
SENCTL3
R633 2.2K
R634 4.7K
Q610
TO FLAT BED
R639 220
R637 56K
R638 56K
CN606
LED
CISPOS0
CISPOS1
GND
R635 5.6K
R636 5.6K
C632 K1000p
C633 K1000p
R772 2.2K
R773 4.7K
Q629
D607
F601 1.25A
R605 1K
R604 1.5K(1/2W)
Q602
TO ADF MOTOR
SMPWR1
Q606
IC600
L617
L618
L619
L620
SM[0]
SM[1]
SM[2]
SM[3]
CN602
ADFMA
ADFMB
ADFMXA
ADFOPEN
ADFMXB
COM
FBOPEN
DOCU
LED
P.F
D600 MA7160
C600 Z0.1u
PG
FBOPEN
ADFOPEN
DOCU
P.F
SENCTL4
R626 5.6K
R627 5.6K
R628 5.6K
R629 5.6K
R630 56K
R631 56K
R632 3.3K
R614 3.3K
C628 K1000p
C629 K1000p
C630 K1000p
C631 K1000p
R602 220
R616 4.7K
R615 2.2K
Q601
IC604
P80VDD
P80VSS
VGG1
VGG2
VGG3
VGG4
VSS
POWER1
POWER2
RESETn
PWRDWNn
WPROTn
BATRSTn
EXT_PWRDWN_SELn
VDRAM
PWN[0]
GPIO[1]
GPIO[2]
C758 Z0.1u
L669 2A601S
R765 1K
C642 Z10
R644 8.2K
R645 10K
R646 2.2K
R647 10K
TP604
R648 0
R649 180K
+3.3V/BATT
C762 Z1u
CHG
DRUM
SDDATA[5]
SDDATA[6]
SDDATA[7]
SDDATA[8]
SDDATA[9]
SDDATA[10]
SDDATA[11]
SDDATA[12]
SDDATA[13]
SDDATA[14]
SDDATA[15]
SDADDR[0]
SDADDR[1]
SDADDR[2]
SDADDR[3]
SDADDR[4]
SDADDR[5]
SDADDR[6]
SDADDR[7]
SDADDR[8]
SDADDR[9]
SDADDR[10]
SDADDR[11]
SDADDR[12]
SDCAS
SDRAS
SDWR
SDCS
SDCLK100MHz
(k)(l)(m)(n)
(o)
(p)(q)
(r)(s)(t)(u)

**KX-FLB756AL DIGITAL BOARD (PCB1) 2/4**

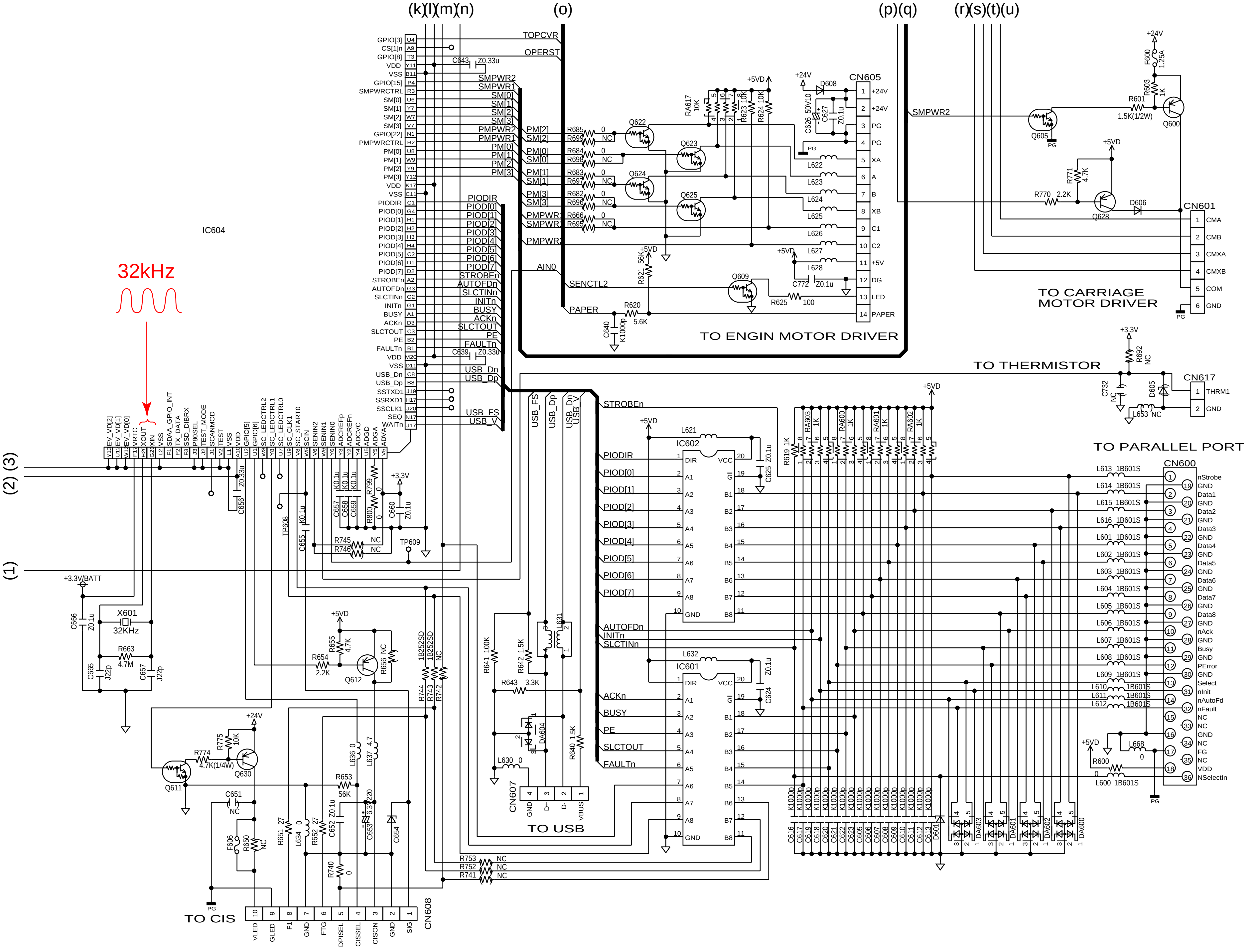

IC606
16M FLASH
IC603
64Mbit SDRAM
IC604
IC600
RA604
RA605
RA606
RA607
RA608
RA618
RA619
RA620
RA621
CN603
FANON1
FANDET1
GND
TO FAN1
CN604
FANON2
FANDET2
TO FAN2
Q604
Q608
Q603
Q607
CN606
LED
CISPOS0
CISPOS1
TO FLAT BED
Q610
SENCTL3
CISPOS0
CISPOS1
SMHOLD2
SMHOLD1
SMPWR1
Q606
Q629
Q602
TO
ADF
MOTOR
CN602
ADFMA
ADFMB
ADFMXA
ADFOPEN
ADFMXB
COM
FBOPEN
DOCU
LED
P.F
FBOPEN
ADFOPEN
DOCU
P.F
SENCTL4
CHG
DRUM
Q601
SM[0]
SM[1]
SM[2]
SM[3]
+3.3V
+5VD
+24V
+3.3V/BATT
TP604
(11)(12)
(7)(8)(9)(10)
(6)
(4)(5)
(k)(l)(m)(n)
(o)
(p)(q)
(r)(s)(t)(u)

100MHz

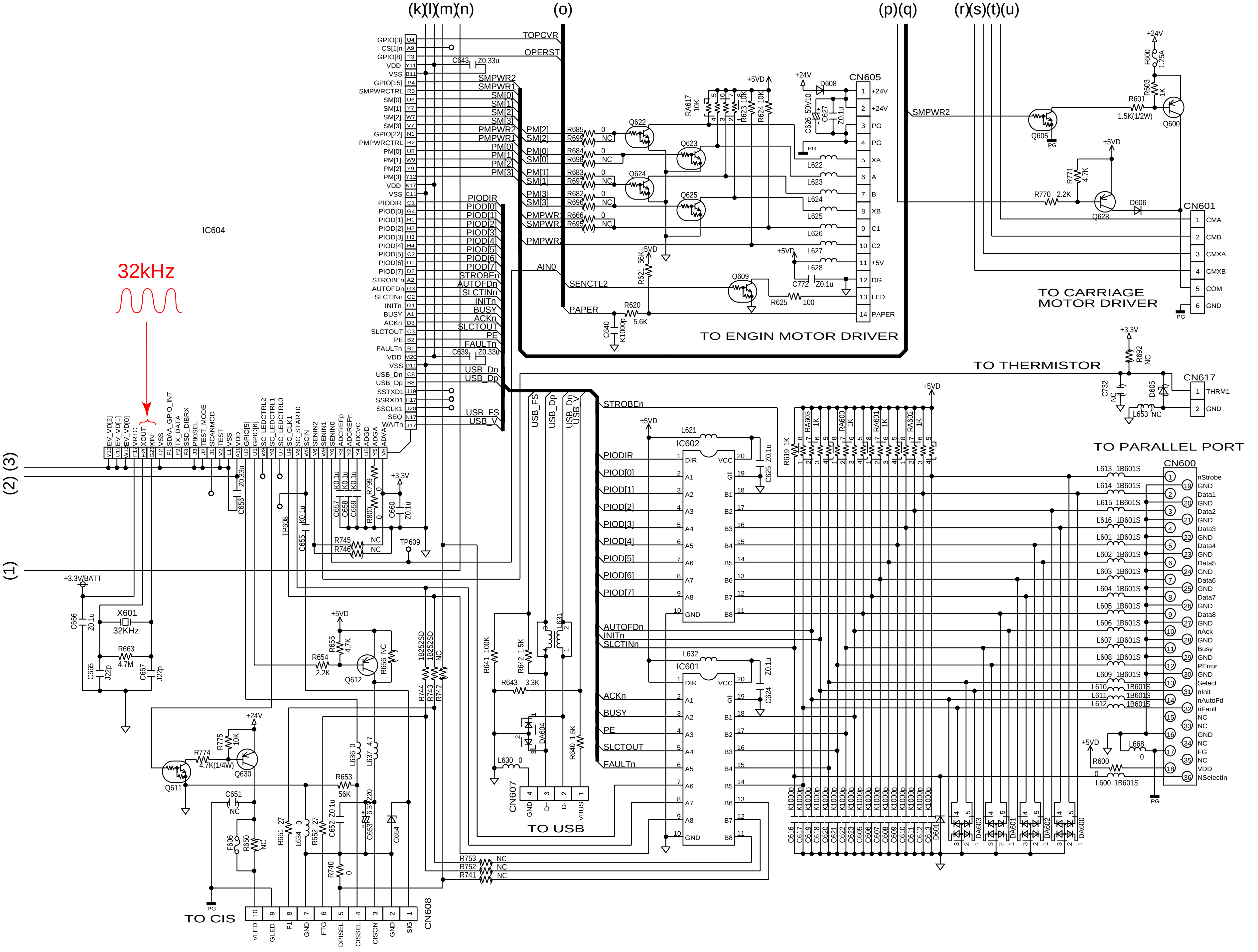
KX-FLB758EX DIGITAL BOARD (PCB1) 2/4


(a)
(b)(c)(d)
(e)(f)
(g)
(h)
(i)(j)
TO OPE
CN611
FG
OPERST
KRXD
KTXD
KSCLK
KLATCH
KSTART
JOG2
JOG1
DG
5V
R711 1K
R712 100
R713 100
R714 100
R715 100
R716 100
R717 NC
R718 NC
R719 10K
+5VD
C768 J100p
C767 J100p
C766 J100p
C765 J100p
R729 NC
R730 NC
C764 J100p
C736 NC
C737 NC
C751 Z0.1u
L670 2A601S
IC610
KSTART
KLATCH
KSCLK
KTXD
KRXD
SMHOLD2
SMHOLD1
ADFOPEN
FBOPEN
DOCU
P.F
POUT
PAPER
C739 Z0.1u
R793 NC
R794 NC
R792 10K
R791 10K
IOP20/MXA
IOP21/MXB
IOP22/MB
IOP23/MXB
IOP24/MPWDN
IOP25
IOP26
IOP27
IOP30
IOP31
TP_IN
TP_CKS
R754 10K
R755 10K
C715 Z0.1u
C716 Z0.1u
C718 Z0.1u
C704 Z0.1u
C714 Z0.1u
TNREMP
MILAT
MIDAT
MICLK
ECLK
ESTB
EDATA
HOOK
VOX
ALC
P-SHORT
CID
EX-HOOK
AGC
BREAK
SPMUTE
RLY
SENCTL5
REGIST
DEV
TRS
10MHz
XRD
XCS
XRESET
DMAACK
DMAREQ
IRQ
CLKIN
3.3V
VSS
LPVSS
CHGO
AVDD
XPD
MVDD
TEST0
TEST1
TEST2
C692 Z0.1u
C693 K330p
R686 3.9K
L649 2A601S
C695 Z0.1u
C694 Z0.1u
R679 10K
R678 10K
+3.3V
R779 22
TP_AUXCLK
C769 J18p
R766 10K
DMAREQ
IRQ
CLK
ALE
XCS
R759 10K
R758 10K
R757 10K
R756 10K
RA612 10K
RA613 10K
R677 10K
IC604
28MHz
DMAREQ2
PRTIRQn
AUXCLK
ALE
CS[2]n
MPIOD[7]
MPIOD[6]
MPIOD[5]
MPIOD[4]
MPIOD[3]
MPIOD[2]
MPIOD[0]
MPIOD[1]
MFAULTn
MACKn
MBUSY
MSLCTOUT
MPE
MSTROBEn
MAUTOFDn
MSLCTINn
MINITn
MPIODIR
VSS
VDD
M_STROBE
M_SCK
M_RXOUT
M_CLKIN
M_TXSIN
M_CNTRL_SIN
GPIO[14]
GPIO[0]
RING_DET
C691 Z0.33u
MSTROBE
MSCK
MRXOUT
MCLKIN
MTXSIN
MCNTRLSIN
POR
M_SLEEP
BELL
TONE1
R671 0
TP628
R764 10K
TP624
TP627
TP625
TP626
R673 0
R662 100
R661 1M
X600 28.224MHz
C678 J18p
C664 J15p
L638 3A700S
(1)
(2)
(3)
TO ANALOG
CN616
+24V
CID
AG
LINEIN
EX-HOOK
AGC
BREAK
TXA2
TXA1
SPMUTE
RLY
BELL
P-SHORT
ALC
ECLK
EDATA
ESTB
TONE1
MILAT
MICLK
MIDAT
DG
+5VD
VOX
HOOK
SENCTL5
TNREMP
L674 1B252SD
L666 1B252SD
L663 1B252SD
L665 1B252SD
L664 1B252SD
L662
L673
L660
L658
L657
L652 470
L651 470
L650 470
L656
L655
L654
L667
L659
L661
C721 K0.01u
R738 5.6K
C722 K1000p
C759 Z0.1u
C770 NC
NC
IC613
INPUT
OSC0
OSC1
VSS
VDD
EST
ACK
SD
R709 NC
C733 NC
IC612 NC
R710 NC
+5VA
C734 NC
C735 NC
IC609
VDD
SET3V_BAR2
VSUB
VSS
ACT90
1BIT_OUT
D_LPBK_BAR
NC
RELAYB
MIC_BIAS
LINE_IN
MIC_IN
VC
VREF
LINE_OUTM
LINE_OUTP
C761 Z0.1u
R761 56K
R760 56K
C760 Z0.1u
C713 50V10
C712 Z0.1u
R739 10K
C724 NC
C723 K0.22u
R708 NC
R707 5.6K
C703 50V10
C701 Z0.1u
C702 50V10
C700 Z0.1u
R706 3.3K
R705 100K
C709 Z0.1u
C711 50V10
C710 Z0.1u
L648 1B252SD
IC605
C676 Z0.1u
C662 Z0.1u
C663 6.3V100
R659 220
R658 1.2K
+3.3V/BATT
D602
R660 100
J600
BAT600
R670 NC
R669 0
R668 NC
R667 2A601S
R798 NC
R797 NC
R796 0
R795 NC
R788 0
R789 NC
R790 2A601S
R801 0
L671 2A601S
L672 2A601S
R762 0
PG

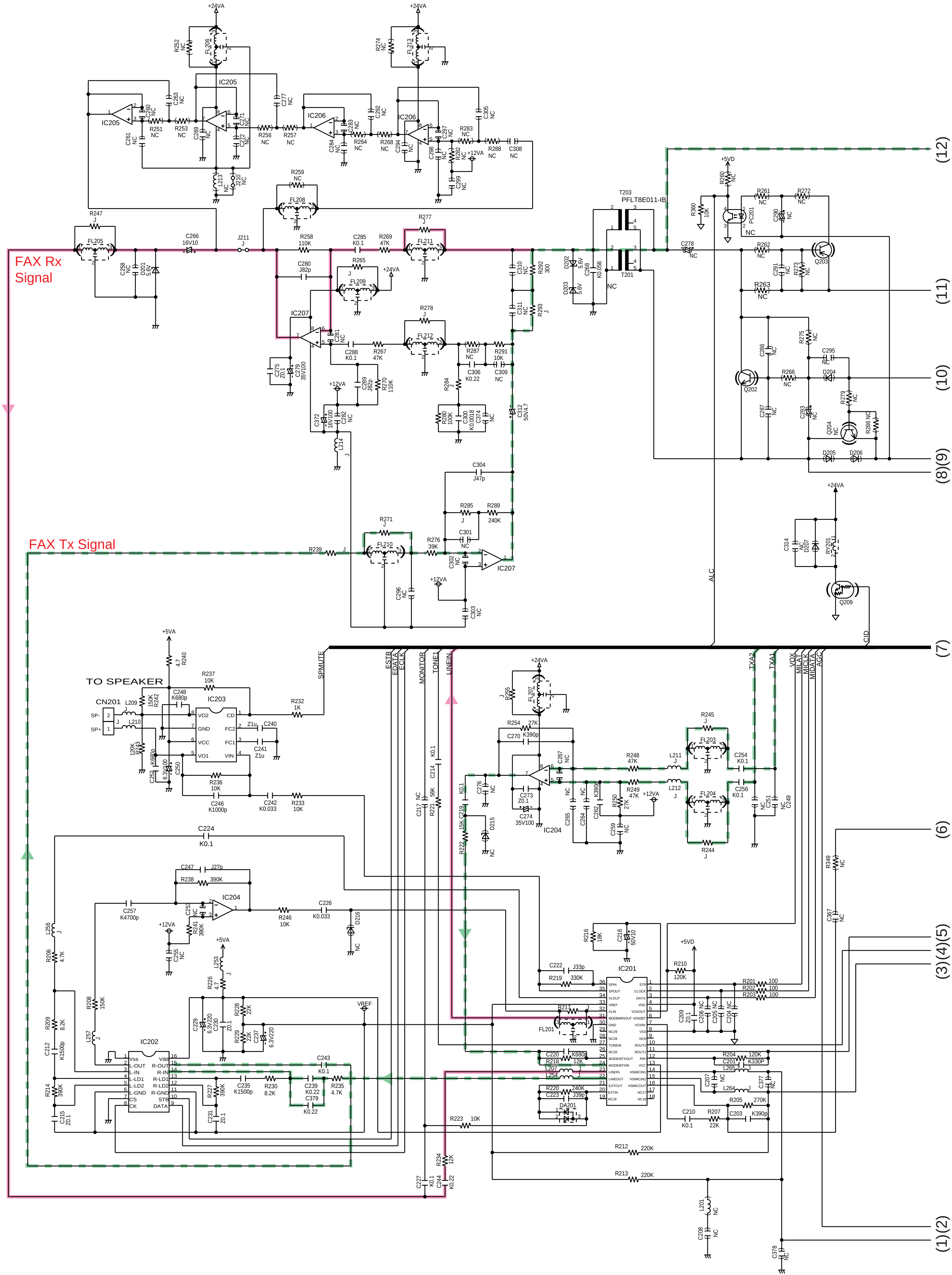
**KX-FLB756AL DIGITAL BOARD (PCB1) 3/4**


(k)(l)(m)(n)
(o)
(p)(q)
(r)(s)(t)(u)
IC604
32kHz
(2) (3)
(1)
+3.3V/BATT
X601
32KHz
C666 Z0.1u
R663 4.7M
C665 J22p
C667 J22p
TOPCVR
OPERST
SMPWR2
SMPWR1
SM[0]
SM[1]
SM[2]
SM[3]
PMPWR2
PMPWR1
PM[0]
PM[1]
PM[2]
PM[3]
PIODIR
PIOD[0]
PIOD[1]
PIOD[2]
PIOD[3]
PIOD[4]
PIOD[5]
PIOD[6]
PIOD[7]
STROBEn
AUTOFDn
SLCTINn
INITn
BUSY
ACKn
SLCTOUT
PE
FAULTn
USB_Dn
USB_Dp
USB_FS
USB_V
AINO
SENCTL2
PAPER
Q622
Q623
Q624
Q625
Q609
CN605
+24V
PG
XA
A
B
XB
C1
C2
+5V
DG
LED
PAPER
TO ENGIN MOTOR DRIVER
Q605
Q600
Q628
F600 1.25A
R603 1K
R601 1.5K(1/2W)
R771 4.7K
R770 2.2K
D606
CN601
CMA
CMB
CMXA
CMXB
COM
GND
TO CARRIAGE MOTOR DRIVER
TO THERMISTOR
R692 NC
C732 NC
D605
L653 NC
CN617
THRM1
TO PARALLEL PORT
CN600
IC602
IC601
DIR
VCC
A1
A2
A3
A4
A5
A6
A7
A8
B1
B2
B3
B4
B5
B6
B7
B8
RA603 1K
RA600 1K
RA601 1K
RA602 1K
R619 1K
nStrobe
Data1
Data2
Data3
Data4
Data5
Data6
Data7
Data8
nAck
Busy
PError
Select
nInit
nAutoFd
nFault
NC
FG
VDD
NSelectIn
L600 1B601S
L668
R600 0
DA600
DA601
DA602
DA603
D601
CN607
GND
D+
D-
VBUS
TO USB
R641 100K
R642 1.5K
R643 3.3K
R640 1.5K
L630 0
L631
DA604
Q612
R654 2.2K
R655 4.7K
R656 NC
Q630
Q611
R774 4.7K(1/4W)
R775 10K
C651 NC
F606
R650 NC
R651 27
L634 0
R652 27
C652 Z0.1u
R653 56K
C653 6.3V220
C654
R740 0
L636 0
L637 4.7
R744 1B252SD
R743 1B252SD
R742 NC
R753 NC
R752 NC
R741 NC
CN608
VLED
GLED
F1
GND
FTG
DPISEL
CISSEL
CISON
GND
SIG
TO CIS
TP608
TP609
R745 NC
R746 NC
C660 Z0.1u
R799
R800 0
+3.3V
+5VD
+24V

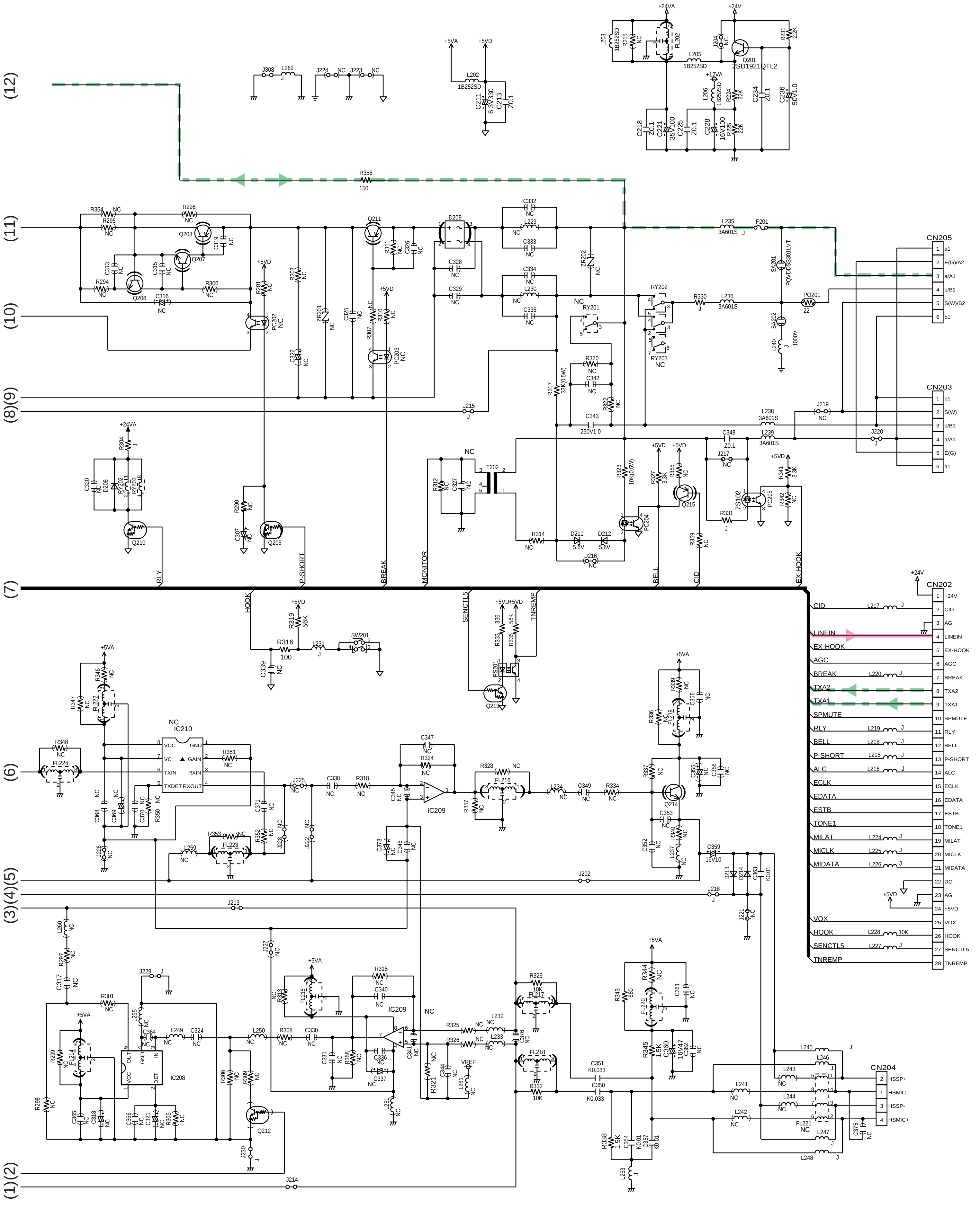
**KX-FLB756AL DIGITAL BOARD (PCB1) 4/4**


(k)(l)(m)(n)
(o)
(p)(q)
(r)(s)(t)(u)
(2) (3)
(1)
IC604
32kHz
TOPCVR
OPERST
SMPWR2
SMPWR1
SM[0]
SM[1]
SM[2]
SM[3]
PMPWR2
PMPWR1
PM[0]
PM[1]
PM[2]
PM[3]
PIODIR
PIOD[0]
PIOD[1]
PIOD[2]
PIOD[3]
PIOD[4]
PIOD[5]
PIOD[6]
PIOD[7]
STROBEn
AUTOFDn
SLCTINn
INITn
BUSY
ACKn
SLCTOUT
PE
FAULTn
USB_Dn
USB_Dp
USB_FS
USB_V
AIN0
SENCTL2
PAPER
CN605
TO ENGIN MOTOR DRIVER
+24V
PG
XA
A
B
XB
C1
C2
+5V
DG
LED
PAPER
Q622
Q623
Q624
Q625
Q609
Q605
Q600
Q628
CN601
CMA
CMB
CMXA
CMXB
COM
GND
TO CARRIAGE MOTOR DRIVER
TO THERMISTOR
CN617
THRM1
TO PARALLEL PORT
CN600
nStrobe
Data1
Data2
Data3
Data4
Data5
Data6
Data7
Data8
nAck
Busy
PError
Select
nInit
nAutoFd
nFault
NC
FG
VDD
NSelectIn
IC602
IC601
DIR
VCC
A1
A2
A3
A4
A5
A6
A7
A8
B1
B2
B3
B4
B5
B6
B7
B8
G
X601
32KHz
Q612
Q611
Q630
CN607
TO USB
GND
D+
D-
VBUS
CN608
TO CIS
VLED
GLED
F1
GND
FTG
DPISEL
CISSEL
CISON
GND
SIG
+3.3V/BATT
+5VD
+3.3V
TP608
TP609
DA600
DA601
DA602
DA603
DA604
D601
D605
D606
D608
F600
1.25A

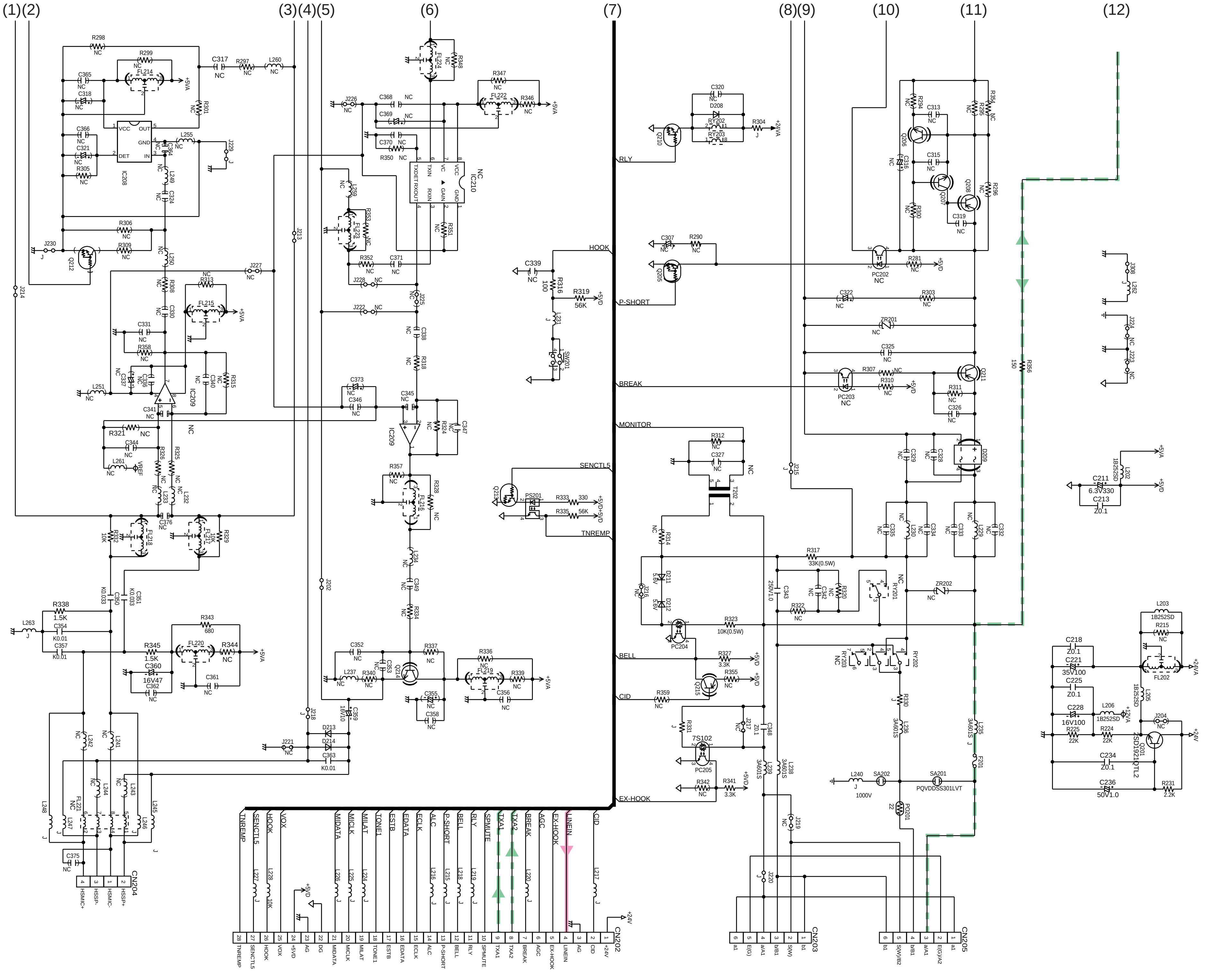
KX-FLB758EX DIGITAL BOARD (PCB1) 4/4


FAX Rx Signal
FAX Tx Signal
TO SPEAKER
CN201
SP-
SP+
IC201
IC202
IC203
IC204
IC205
IC206
IC207
T201
T203
PFLT8E011-IB
Q202
Q203
Q204
Q209
PC201
RY201
DA201
FL201
FL203
FL204
FL205
FL206
FL207
FL208
FL209
FL210
FL211
FL212
FL213
+24VA
+12VA
+5VA
+5VD
VREF
ALC
CID
SPMUTE
ESTB
EDATA
ECLK
MONITOR
TONE
LINEIN
TXA2
TXA1
VOX
MICLK
MIDATA
AGC
(12)
(11)
(10)
(8)(9)
(7)
(6)
(3)(4)(5)
(1)(2)

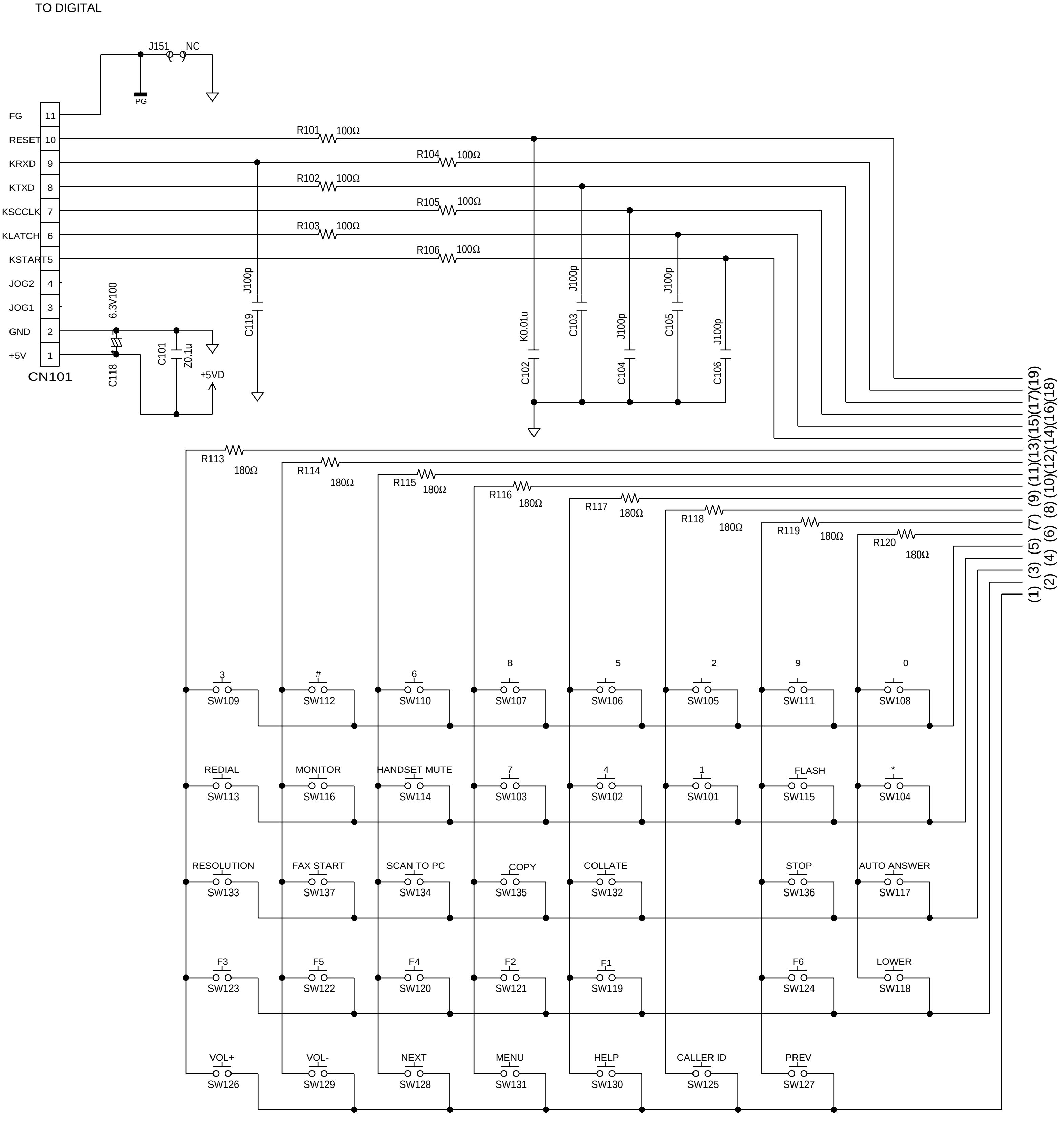
KX-FLB751 ANALOG BOARD (PCB2) 1/2


(12)
(11)
(10)
(8)(9)
(7)
(6)
(3)(4)(5)
(1)(2)
+24VA
+24V
+5VA
+5VD
+12VA
L203
1B252SD
R215
NC
FL202
L205
1B252SD
J204
NC
Q201
2SD1921QTL2
R231
2.2K
J308
L262
J
J224
NC
J223
NC
L202
1B252SD
C211
6.3V330
C213
Z0.1
L206
1B252SD
R224
22K
C234
Z0.1
C236
50V1.0
C218
Z0.1
C221
35V100
C225
Z0.1
C228
16V100
R225
22K
R356
150
R354
NC
R295
NC
R296
NC
Q208
Q207
C319
NC
C313
NC
C315
NC
R294
NC
Q206
C316
NC
R300
NC
R281
NC
PC202
NC
R303
NC
ZR201
NC
C325
NC
C322
NC
Q211
R311
NC
C326
NC
R307
NC
R310
NC
PC203
NC
D209
C328
NC
C329
NC
C332
NC
L229
NC
C333
NC
C334
NC
L230
NC
C335
NC
ZR202
NC
RY201
RY202
RY203
NC
R330
J
L236
3A601S
L235
3A601S
F201
J
SA201
PQVDDSS301LVT
SA202
L240
J
1000V
PO201
22
CN205
a1
E(G)/A2
a/A1
b/B1
S(W)/B2
b1
R320
NC
C342
NC
R322
NC
R317
33K(0.5W)
C343
250V1.0
J215
J
CN203
b1
S(W)
b/B1
a/A1
E(G)
a1
J219
NC
L238
3A601S
C348
Z0.1
L239
3A601S
J220
J
J217
NC
R304
J
C320
NC
D208
RY202
RY203
Q210
R290
NC
C307
NC
Q205
NC
T202
R312
NC
C327
NC
R323
10K(0.5W)
R327
3.3K
R355
NC
Q215
7S102
PC205
R341
3.3K
R342
NC
R331
J
R314
NC
D211
5.6V
D212
5.6V
J216
NC
PC204
R359
NC
RLY
P-SHORT
BREAK
MONITOR
BELL
CID
EX-HOOK
HOOK
SENCTL5
TNREMP
R319
56K
R316
100
L231
J
SW201
C339
NC
R333
330
R335
56K
PS201
Q213
CN202
+24V
CID
AG
LINEIN
EX-HOOK
AGC
BREAK
TXA2
TXA1
SPMUTE
RLY
BELL
P-SHORT
ALC
ECLK
EDATA
ESTB
TONE1
MILAT
MICLK
MIDATA
DG
AG
+5VD
VOX
HOOK
SENCTL5
TNREMP
L217
J
L220
J
L219
J
L218
J
L215
J
L216
J
L224
J
L225
J
L226
J
L228
10K
L227
J
R346
NC
R347
NC
FL222
NC
IC210
VCC
GND
VC
GAIN
TXIN
RXIN
TXDET
RXOUT
R351
NC
R348
NC
FL224
C368
C369
C370
R350
C371
NC
R353
NC
FL223
R352
NC
J228
NC
J222
NC
J226
NC
L259
NC
J225
NC
C338
NC
R318
NC
C347
NC
R324
NC
IC209
C345
NC
C373
NC
C346
NC
R328
NC
FL216
R357
NC
L234
NC
C349
NC
R334
NC
R339
NC
C356
NC
R336
NC
FL219
R337
NC
C355
NC
C358
NC
Q214
C353
NC
C352
NC
R340
NC
L237
NC
C359
16V10
D213
D214
C363
K0.01
J202
J218
J
J213
J221
NC
L260
NC
R297
NC
C317
NC
J229
J
R301
NC
L255
NC
C364
NC
L249
NC
C324
NC
FL214
R299
NC
IC208
OUT
GND
IN
VCC
DET
R298
NC
C365
NC
C318
NC
C366
NC
C321
NC
R305
NC
J227
NC
R313
NC
FL215
L250
NC
R308
NC
C330
NC
R306
NC
R309
NC
Q212
J230
J
C331
NC
R358
NC
C336
NC
C337
NC
R315
NC
C340
NC
IC209
NC
C341
NC
L251
NC
R325
NC
R326
NC
L232
NC
L233
NC
C376
NC
R321
NC
C344
NC
L261
NC
VREF
R329
10K
FL217
FL218
R332
10K
C351
K0.033
C350
K0.033
R344
NC
R343
680
FL220
C361
NC
R345
1.5K
C360
16V47
C362
NC
R338
1.5K
C354
K0.01
C357
K0.01
L263
J
J214
L245
J
L246
J
L243
NC
L244
NC
L241
NC
L242
NC
FL221
NC
L247
J
L248
J
C375
NC
CN204
HSSP+
HSMIC-
HSSP-
HSMIC+

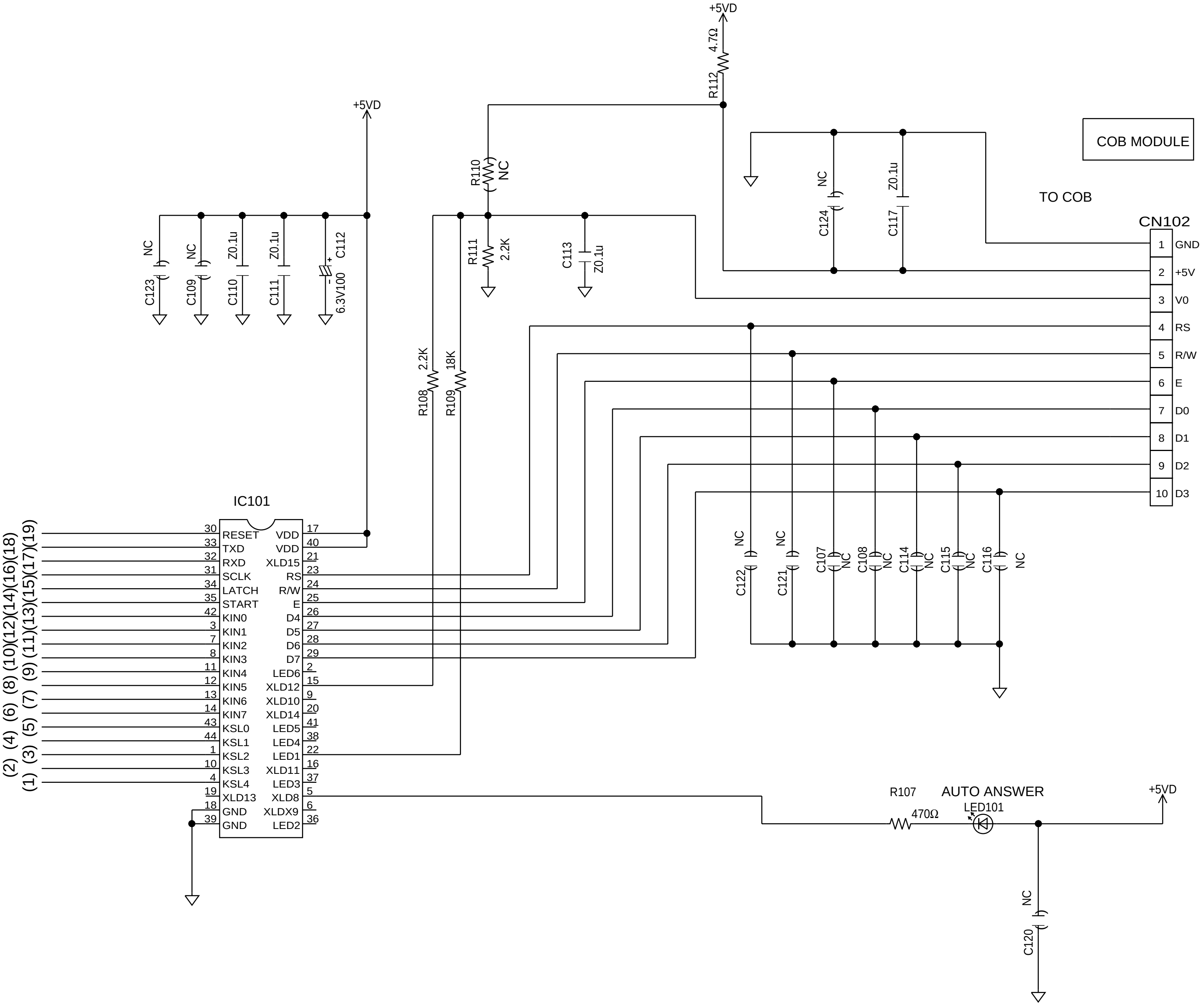
**KX-FLB751 ANALOG BOARD (PCB2) 2/2**


(1)
(2)
(3)
(4)
(5)
(6)
(7)
(8)
(9)
(10)
(11)
(12)
IC208
IC209
IC210
FL214
FL215
FL216
FL217
FL218
FL219
FL220
FL221
FL222
FL223
FL224
FL202
RLY
HOOK
P-SHORT
BREAK
MONITOR
SENCTL5
TNREMP
BELL
CID
EX-HOOK
Q210
Q205
PC202
PC203
PC204
PC205
PS201
Q213
Q214
Q215
Q206
Q207
Q208
Q211
Q212
Q201
RY201
RY202
RY203
T202
D209
D211
D212
D213
D214
ZR201
ZR202
SW201
SA201
SA202
PQVDDSS301LVT
F201
PO201
CN202
CN203
CN204
CN205
TNREMP
SENCTL5
HOOK
VOX
+5VD
AG
DG
MIDATA
MICLK
MILAT
TONE1
ESTB
EDATA
ECLK
ALC
P-SHORT
BELL
RLY
SPMUTE
TXA1
TXA2
BREAK
AGC
EX-HOOK
LINEIN
AG
CID
+24V
a1
E(G)
aA1
bB1
S(W)
b1
S(W)/B2
E(G)/A2
HSMIC+
HSSP-
HSMIC-
HSSP+
+5VA
+5VD
+24VA
+24V
+12VA
NC

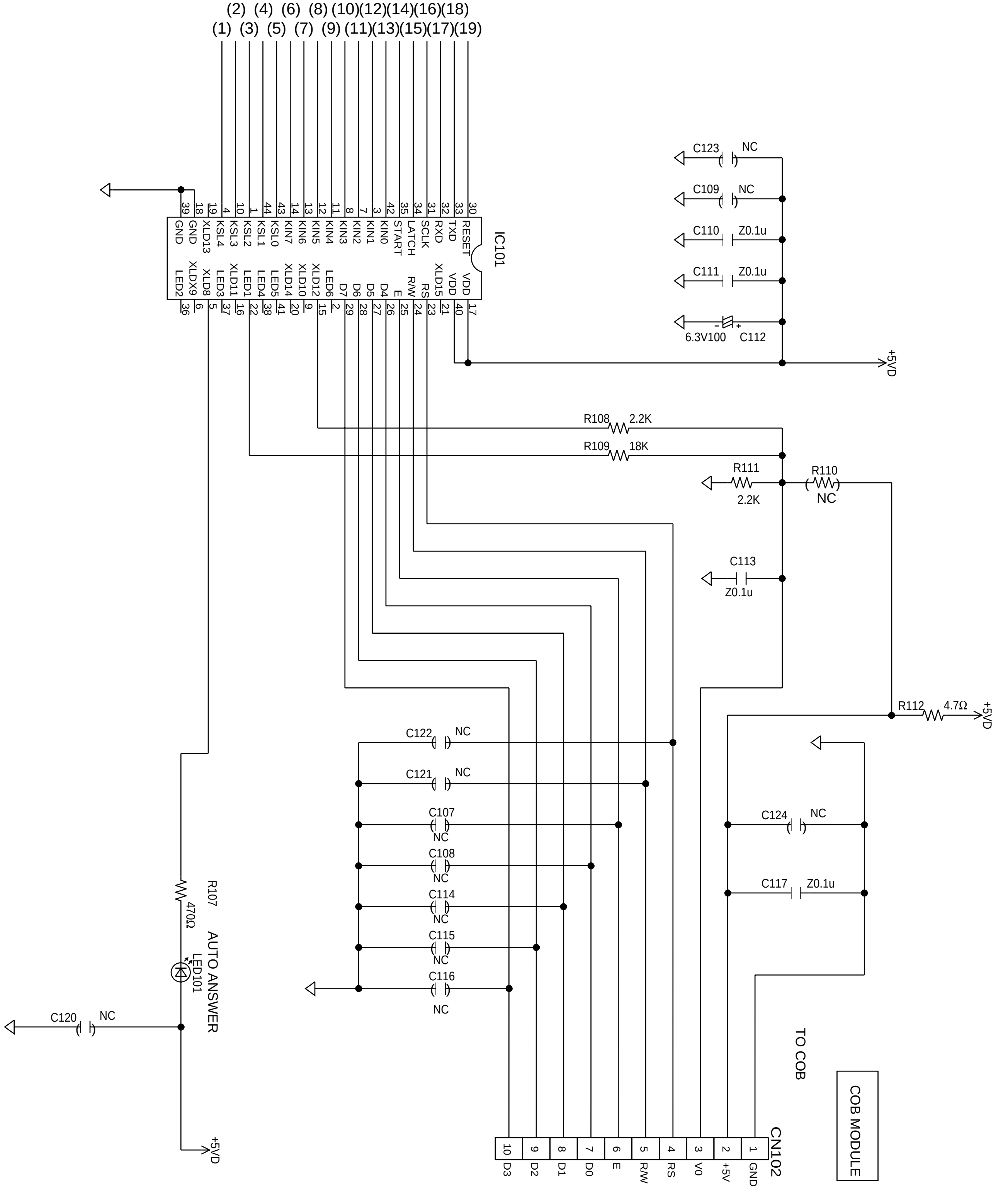
## KX-FLB751 ANALOG BOARD (PCB2) 2/2


TO DIGITAL
J151
NC
PG
FG 11
RESET 10
KRXD 9
KTXD 8
KSCCLK 7
KLATCH 6
KSTART 5
JOG2 4
JOG1 3
GND 2
+5V 1
CN101
6.3V100
C118
C101
Z0.1u
+5VD
R101 100Ω
R104 100Ω
R102 100Ω
R105 100Ω
R103 100Ω
R106 100Ω
J100p C119
K0.01u C102
J100p C103
J100p C104
J100p C105
J100p C106
R113 180Ω
R114 180Ω
R115 180Ω
R116 180Ω
R117 180Ω
R118 180Ω
R119 180Ω
R120 180Ω
(1) (3) (5) (7) (9) (11)(13)(15)(17)(19)
(2) (4) (6) (8) (10)(12)(14)(16)(18)
3 SW109
# SW112
6 SW110
8 SW107
5 SW106
2 SW105
9 SW111
0 SW108
REDIAL SW113
MONITOR SW116
HANDSET MUTE SW114
7 SW103
4 SW102
1 SW101
FLASH SW115
* SW104
RESOLUTION SW133
FAX START SW137
SCAN TO PC SW134
COPY SW135
COLLATE SW132
STOP SW136
AUTO ANSWER SW117
F3 SW123
F5 SW122
F4 SW120
F2 SW121
F1 SW119
F6 SW124
LOWER SW118
VOL+ SW126
VOL- SW129
NEXT SW128
MENU SW131
HELP SW130
CALLER ID SW125
PREV SW127

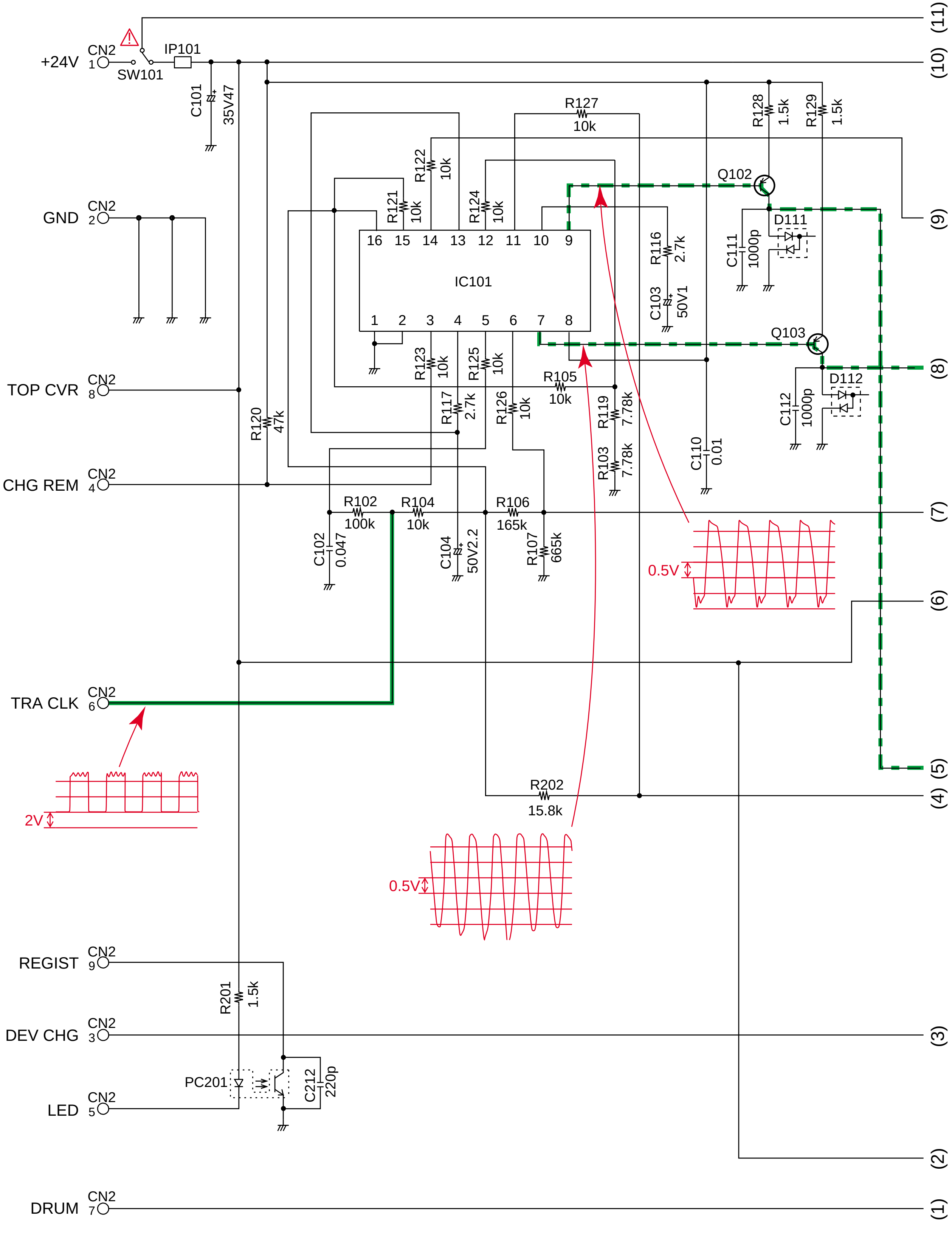
**KX-FLB756AL OPERATION BOARD (PCB3) 1/2**


+5VD
4.7Ω
R112
COB MODULE
TO COB
CN102
1 GND
2 +5V
3 V0
4 RS
5 R/W
6 E
7 D0
8 D1
9 D2
10 D3
R110
NC
R111
2.2K
C113
Z0.1u
NC
C124
Z0.1u
C117
+5VD
NC
C123
NC
C109
Z0.1u
C110
Z0.1u
C111
C112
6.3V100
R108
2.2K
R109
18K
IC101
30 RESET
33 TXD
32 RXD
31 SCLK
34 LATCH
35 START
42 KIN0
3 KIN1
7 KIN2
8 KIN3
11 KIN4
12 KIN5
13 KIN6
14 KIN7
43 KSL0
44 KSL1
1 KSL2
10 KSL3
4 KSL4
19 XLD13
18 GND
39 GND
VDD 17
VDD 40
XLD15 21
RS 23
R/W 24
E 25
D4 26
D5 27
D6 28
D7 29
LED6 2
XLD12 15
XLD10 9
XLD14 20
LED5 41
LED4 38
LED1 22
XLD11 16
LED3 37
XLD8 5
XLDX9 6
LED2 36
(2) (4) (6) (8) (10)(12)(14)(16)(18)
(1) (3) (5) (7) (9) (11)(13)(15)(17)(19)
NC
C122
NC
C121
C107
NC
C108
NC
C114
NC
C115
NC
C116
NC
R107
470Ω
AUTO ANSWER
LED101
+5VD
NC
C120

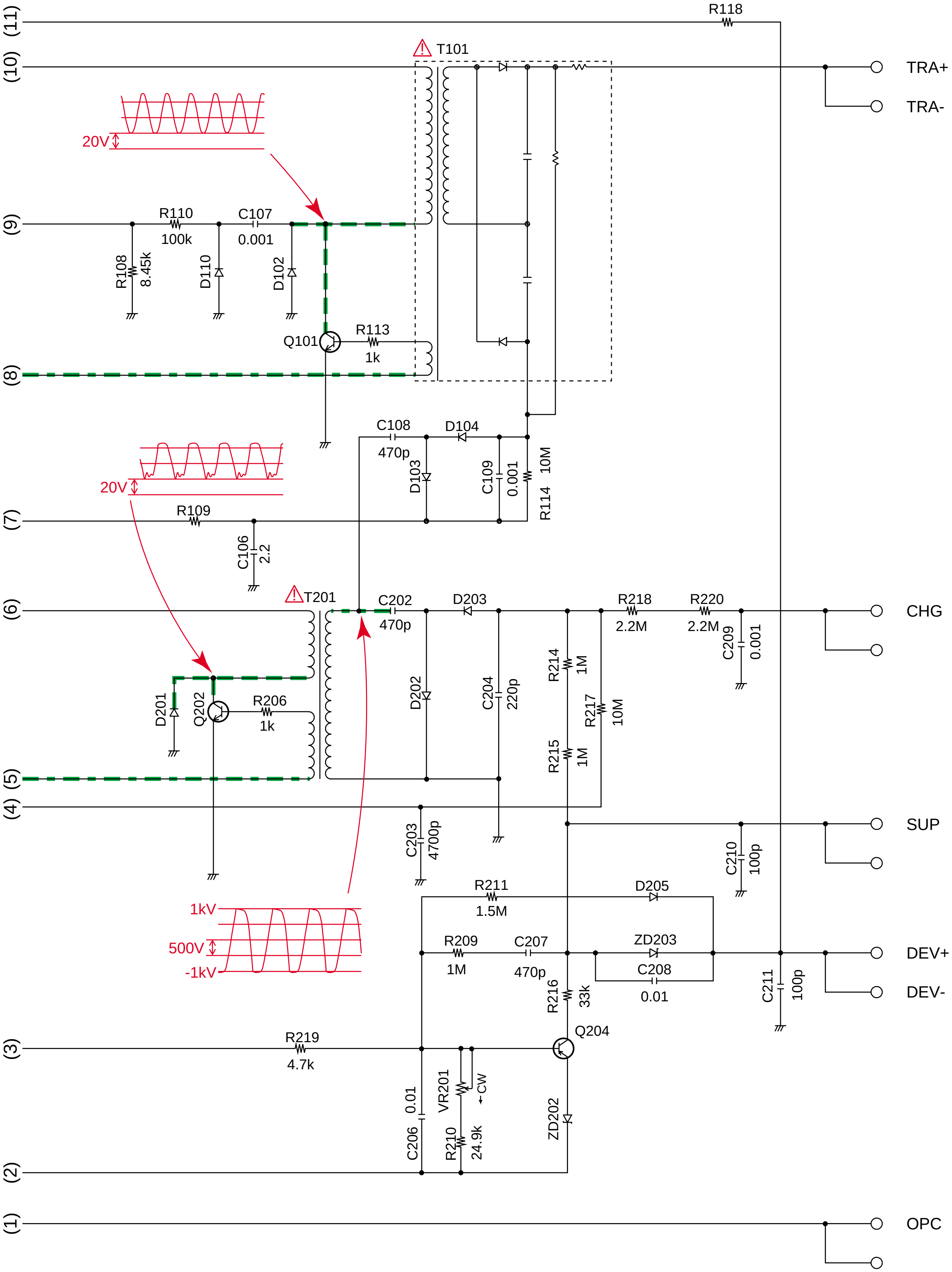
**KX-FLB756AL OPERATION BOARD (PCB3) 2/2**


(1) (2) (3) (4) (5) (6) (7) (8) (9) (10) (11) (12) (13) (14) (15) (16) (17) (18) (19)
IC101
GND 39
GND 18
XLD13 19
KSL4 4
KSL3 10
KSL2 1
KSL1 44
KSL0 43
KIN7 14
KIN6 13
KIN5 12
KIN4 11
KIN3 8
KIN2 7
KIN1 3
KIN0 42
START 35
LATCH 34
SCLK 31
RXD 32
TXD 33
RESET 30
LED2 36
XLDX9 6
XLD8 5
LED3 37
XLD11 16
LED1 22
LED4 38
LED5 41
XLD14 20
XLD10 9
XLD12 15
LED6 2
D7 29
D6 28
D5 27
D4 26
E 25
R/W 24
RS 23
XLD15 21
VDD 40
VDD 17
C123 NC
C109 NC
C110 Z0.1u
C111 Z0.1u
6.3V100 C112
+5VD
R108 2.2K
R109 18K
R111 2.2K
R110 NC
C113 Z0.1u
R112 4.7Ω
+5VD
C122 NC
C121 NC
C107 NC
C108 NC
C114 NC
C115 NC
C116 NC
C124 NC
C117 Z0.1u
R107 470Ω
AUTO ANSWER LED101
C120 NC
+5VD
TO COB
COB MODULE
CN102
10 D3
9 D2
8 D1
7 D0
6 E
5 R/W
4 RS
3 V0
2 +5V
1 GND

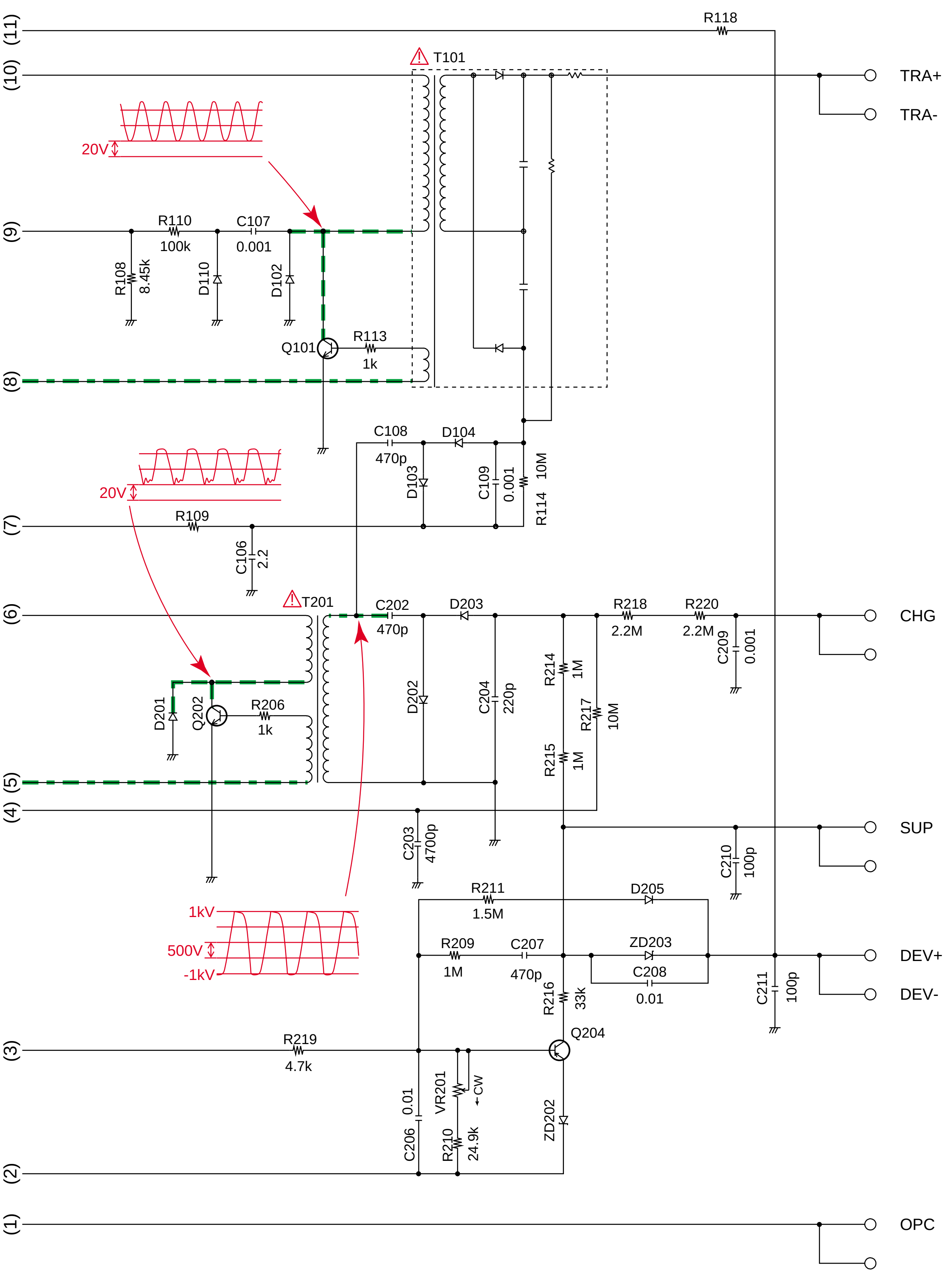
# KX-FLB758EX OPERATION BOARD (PCB3) 2/2


+24V
CN2
1
SW101
IP101
C101
35V47
GND
CN2
2
TOP CVR
CN2
8
CHG REM
CN2
4
TRA CLK
CN2
6
2V
REGIST
CN2
9
DEV CHG
CN2
3
LED
CN2
5
DRUM
CN2
7
R201
1.5k
PC201
C212
220p
R120
47k
R121
10k
R122
10k
R124
10k
R127
10k
R128
1.5k
R129
1.5k
Q102
Q103
D111
D112
C111
1000p
C112
1000p
16
15
14
13
12
11
10
9
IC101
1
2
3
4
5
6
7
8
R116
2.7k
C103
50V1
R123
10k
R125
10k
R105
10k
R117
2.7k
R126
10k
R119
7.78k
R103
7.78k
C110
0.01
R102
100k
R104
10k
R106
165k
C102
0.047
C104
50V2.2
R107
665k
0.5V
R202
15.8k
0.5V
(11)
(10)
(9)
(8)
(7)
(6)
(5)
(4)
(3)
(2)
(1)

## KX-FLB756AL HIGH VOLTAGE POWER SUPPLY BOARD (PCB4) 1/2

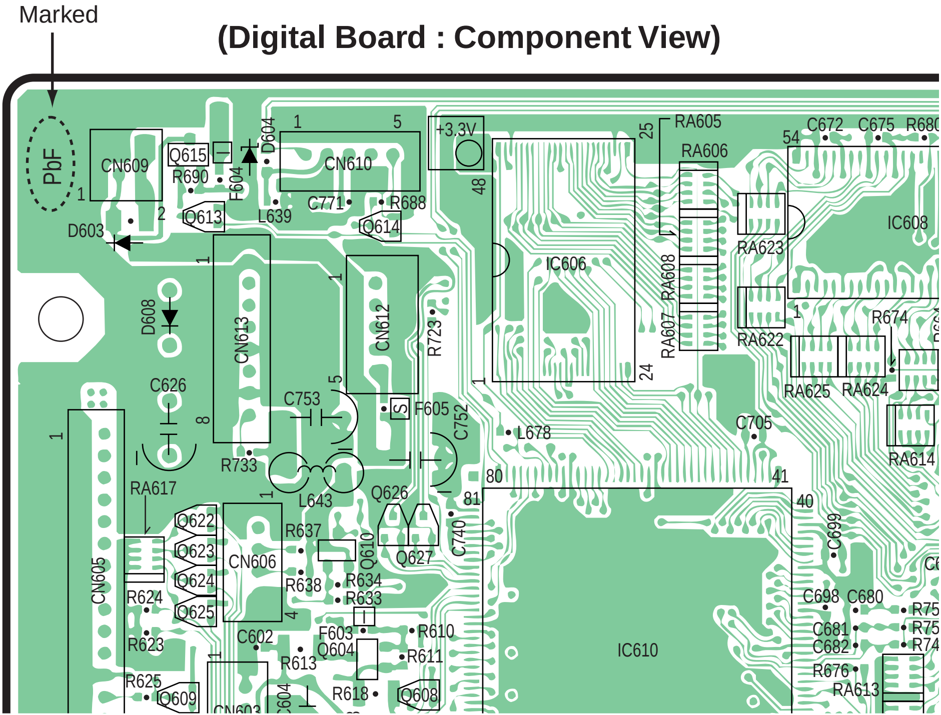

(11)
R118
(10)
T101
TRA+
TRA-
20V
(9)
R110
100k
C107
0.001
R108
8.45k
D110
D102
Q101
R113
1k
(8)
C108
470p
D104
D103
C109
0.001
10M
R114
20V
(7)
R109
C106
2.2
(6)
T201
C202
470p
D203
R218
2.2M
R220
2.2M
C209
0.001
CHG
R214
1M
D201
Q202
R206
1k
D202
C204
220p
R217
10M
R215
1M
(5)
(4)
C203
4700p
SUP
C210
100p
R211
1.5M
D205
1kV
500V
-1kV
R209
1M
C207
470p
ZD203
C208
0.01
DEV+
DEV-
R216
33k
C211
100p
Q204
(3)
R219
4.7k
0.01
C206
VR201
CW
R210
24.9k
ZD202
(2)
(1)
OPC

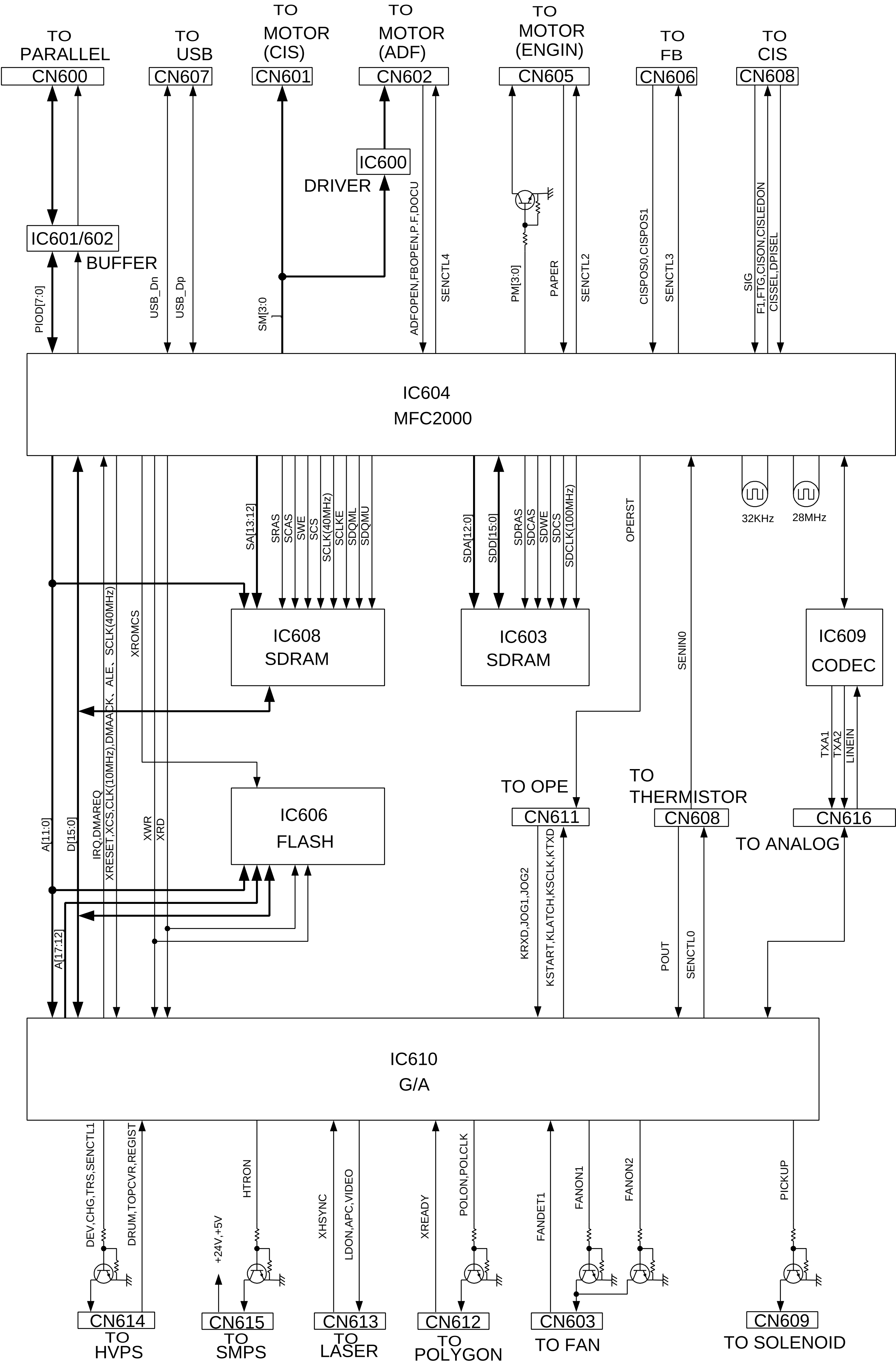
**KX-FLB756AL HIGH VOLTAGE POWER SUPPLY BOARD (PCB4) 2/2**

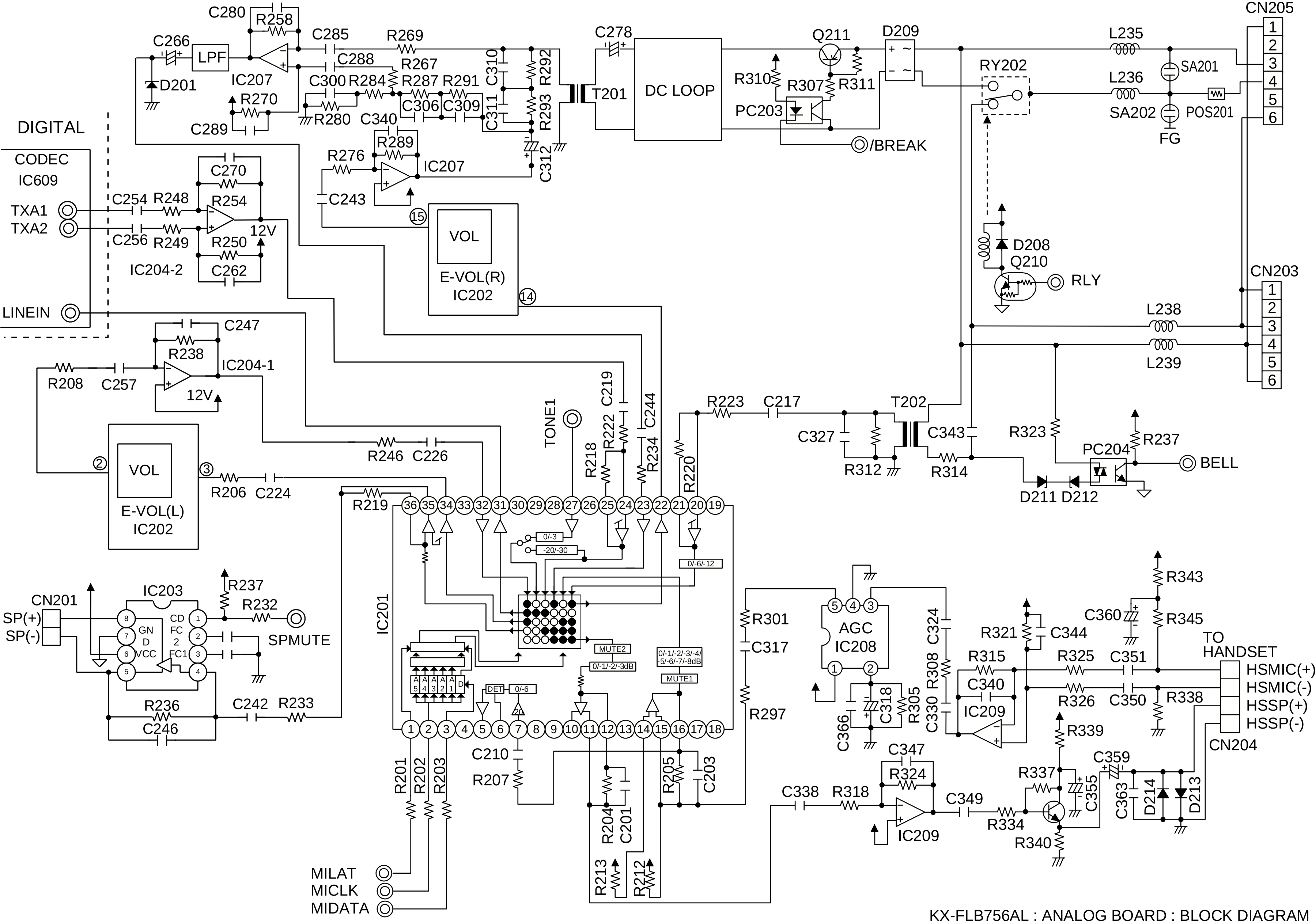

(11)
R118
(10)
T101
TRA+
TRA-
20V
(9)
R110
100k
C107
0.001
R108
8.45k
D110
D102
Q101
R113
1k
(8)
C108
470p
D104
D103
C109
0.001
10M
R114
20V
(7)
R109
C106
2.2
T201
(6)
C202
470p
D203
R218
2.2M
R220
2.2M
CHG
C209
0.001
R214
1M
D201
Q202
R206
1k
D202
C204
220p
R217
10M
R215
1M
(5)
(4)
C203
4700p
SUP
C210
100p
R211
1.5M
D205
1kV
500V
-1kV
R209
1M
C207
470p
ZD203
C208
0.01
DEV+
DEV-
R216
33k
C211
100p
Q204
(3)
R219
4.7k
C206
0.01
VR201
CW
R210
24.9k
ZD202
(2)
(1)
OPC

**KX-FLB758EX HIGH VOLTAGE POWER SUPPLY BOARD (PCB4) 2/2**

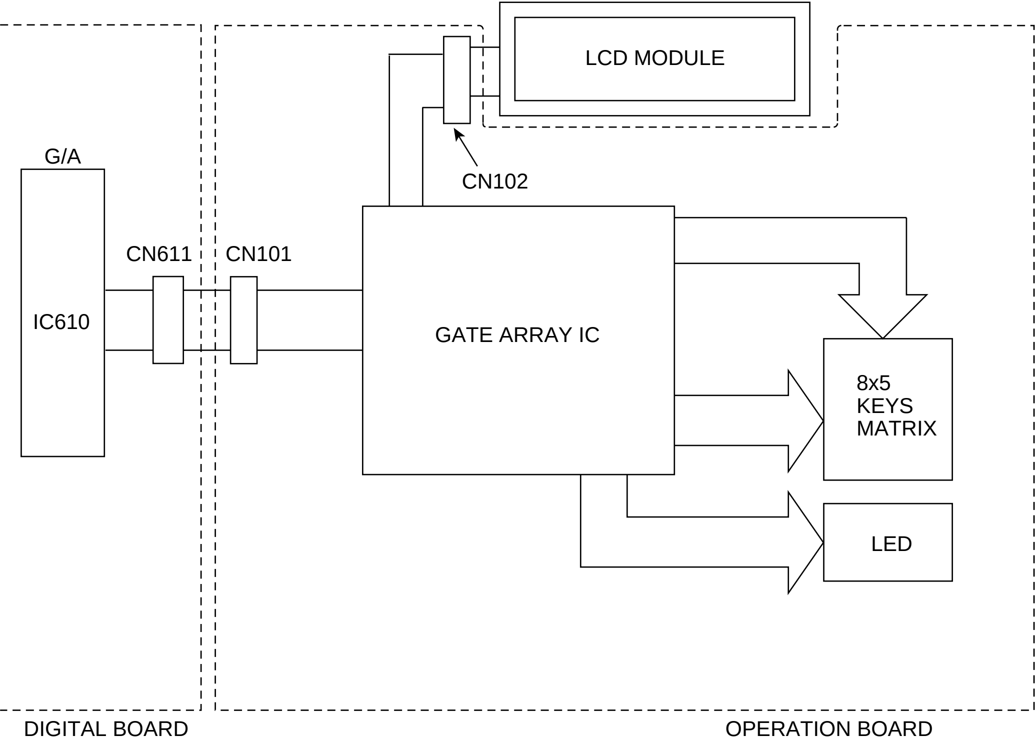
# (Digital Board : Component View)


Marked
PbF
CN609
1
2
Q615
R690
F604
D604
1
5
CN610
+3.3V
25
RA605
RA606
54
C672
C675
D603
Q613
L639
C771
R688
Q614
48
IC608
RA623
IC606
RA608
RA607
1
RA622
R674
24
RA625
RA624
D608
CN613
1
CN612
1
R723
C626
8
C753
5
F605
C752
1
L678
C705
RA614
1
R733
RA617
L643
80
41
81
40
Q622
Q623
Q624
Q625
CN606
R637
Q610
Q626
Q627
C740
C699
CN605
R624
R638
R634
R633
4
C698
C680
R623
C602
F603
R610
C681
C682
Q604
R613
R611
1
IC610
R676
R625
Q609
CN603
C604
R618
Q608
RA613


TO PARALLEL
CN600
TO USB
CN607
TO MOTOR (CIS)
CN601
TO MOTOR (ADF)
CN602
TO MOTOR (ENGIN)
CN605
TO FB
CN606
TO CIS
CN608
IC600
DRIVER
IC601/602
BUFFER
PIOD[7:0]
USB_Dn
USB_Dp
SM[3:0
ADFOPEN,FBOPEN,P.F,DOCU
SENCTL4
PM[3:0]
PAPER
SENCTL2
CISPOS0,CISPOS1
SENCTL3
SIG
F1,FTG,CISON,CISLEDON
CISSEL,DPISEL
IC604
MFC2000
SA[13:12]
SRAS
SCAS
SWE
SCS
SCLK(40MHz)
SCLKE
SDQML
SDQMU
SDA[12:0]
SDD[15:0]
SDRAS
SDCAS
SDWE
SDCS
SDCLK(100MHz)
OPERST
32KHz
28MHz
IC608
SDRAM
IC603
SDRAM
IC609
CODEC
SENIN0
TXA1
TXA2
LINEIN
XROMCS
IRQ,DMAREQ
XRESET,XCS,CLK(10MHz),DMAACK, ALE, SCLK(40MHz)
XWR
XRD
A[11:0]
D[15:0]
A[17:12]
IC606
FLASH
TO OPE
CN611
TO THERMISTOR
CN608
CN616
TO ANALOG
KRXD,JOG1,JOG2
KSTART,KLATCH,KSCLK,KTXD
POUT
SENCTL0
IC610
G/A
DEV,CHG,TRS,SENCTL1
DRUM,TOPCVR,REGIST
+24V,+5V
HTRON
XHSYNC
LDON,APC,VIDEO
XREADY
POLON,POLCLK
FANDET1
FANON1
FANON2
PICKUP
CN614
TO HVPS
CN615
TO SMPS
CN613
TO LASER
CN612
TO POLYGON
CN603
TO FAN
CN609
TO SOLENOID

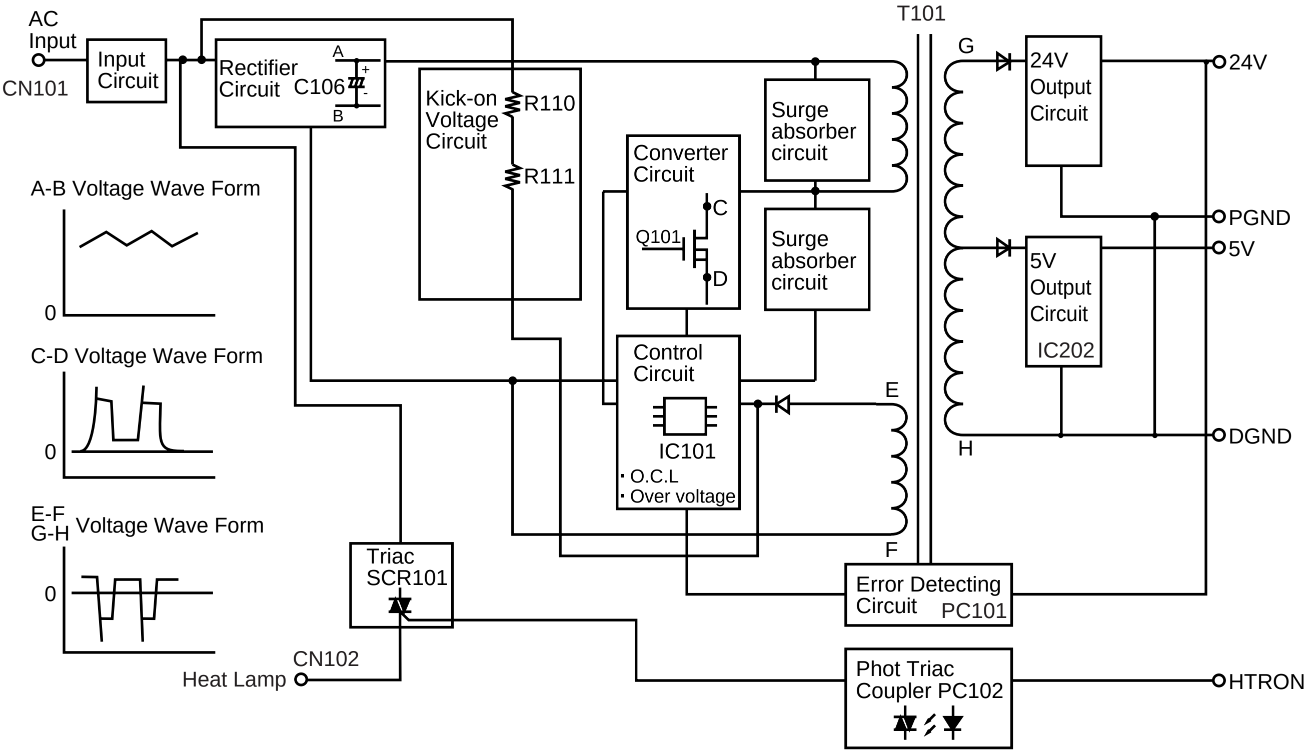

DIGITAL
CODEC
IC609
TXA1
TXA2
LINEIN
C280
R258
C266
LPF
D201
IC207
C285
C288
R269
R267
C300
R284
R287
R291
R270
C289
R280
C306
C309
C310
C311
R292
R293
C312
C340
R289
R276
C243
IC207
C270
R254
C254
R248
C256
R249
R250
C262
12V
IC204-2
VOL
E-VOL(R)
IC202
15
14
C247
R238
IC204-1
R208
C257
12V
VOL
E-VOL(L)
IC202
2
3
R206
C224
R246
C226
C219
R222
C244
R218
R234
TONE1
R220
R219
IC201
0/-3
-20/-30
0/-6/-12
MUTE2
0/-1/-2/-3dB
0/-1/-2/-3/-4/-5/-6/-7/-8dB
MUTE1
DET
0/-6
20
A5
A4
A3
A2
A1
D
C210
R207
R201
R202
R203
R204
C201
R205
C203
R213
R212
MILAT
MICLK
MIDATA
CN201
SP(+)
SP(-)
IC203
GND
VCC
CD
FC2
FC1
R237
R232
SPMUTE
R236
C246
C242
R233
C278
T201
DC LOOP
Q211
R310
R307
R311
PC203
/BREAK
D209
RY202
L235
L236
SA201
SA202
POS201
FG
CN205
D208
Q210
RLY
CN203
L238
L239
R223
C217
T202
C327
R312
C343
R314
R323
PC204
R237
BELL
D211
D212
R301
C317
R297
AGC
IC208
C324
R308
C330
C366
C318
R305
R321
C344
R315
C340
IC209
R325
R326
C351
C350
C360
R343
R345
R338
TO HANDSET
HSMIC(+)
HSMIC(-)
HSSP(+)
HSSP(-)
CN204
R339
R337
C355
C359
C363
D214
D213
C347
R324
C338
R318
IC209
C349
R334
R340

KX-FLB756AL : ANALOG BOARD : BLOCK DIAGRAM

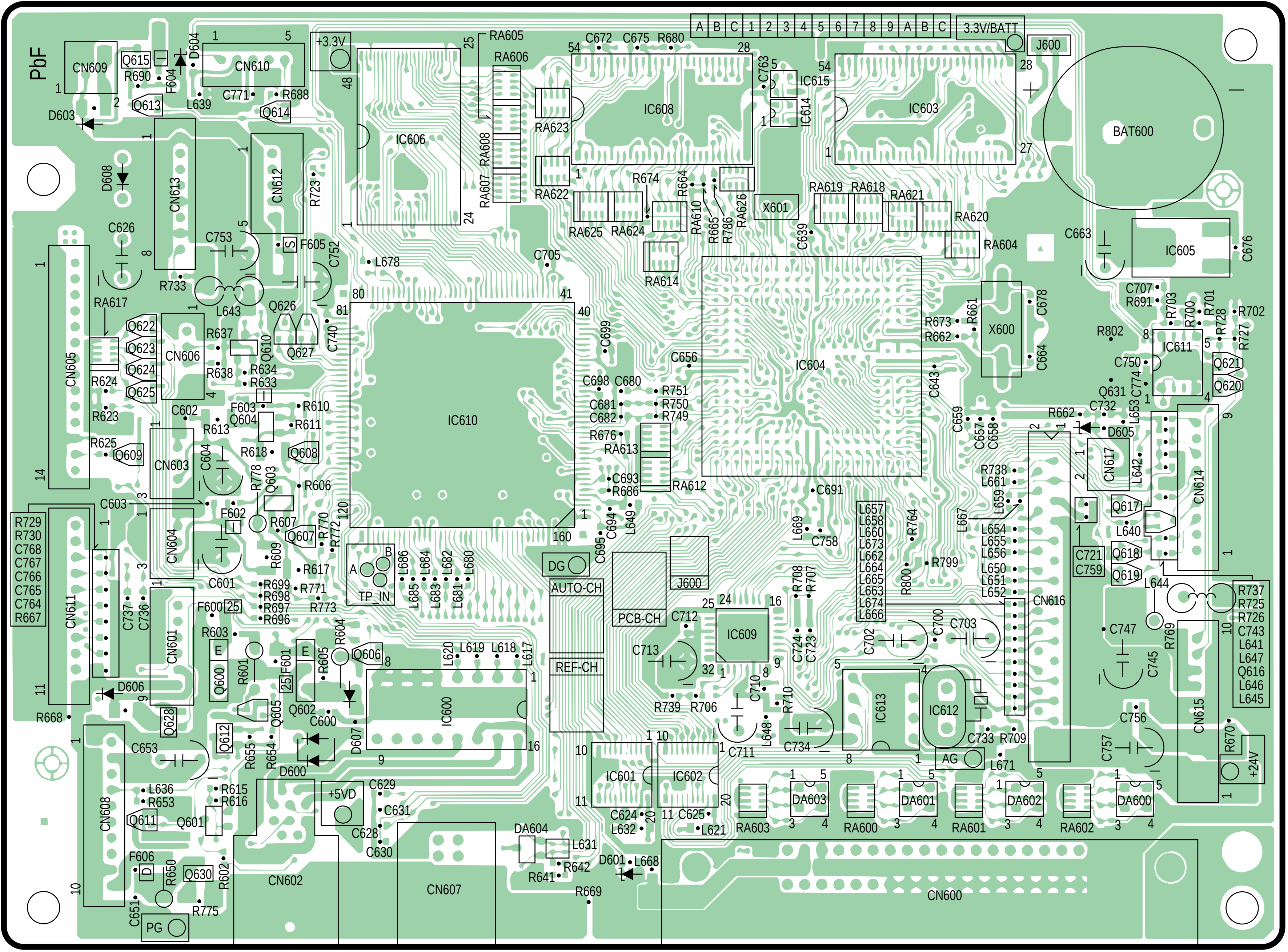

LCD MODULE
CN102
G/A
IC610
CN611
CN101
GATE ARRAY IC
8x5
KEYS
MATRIX
LED
DIGITAL BOARD
OPERATION BOARD

KX-FLB758PD : OPERATION BOARD : BLOCK DIAGRAM

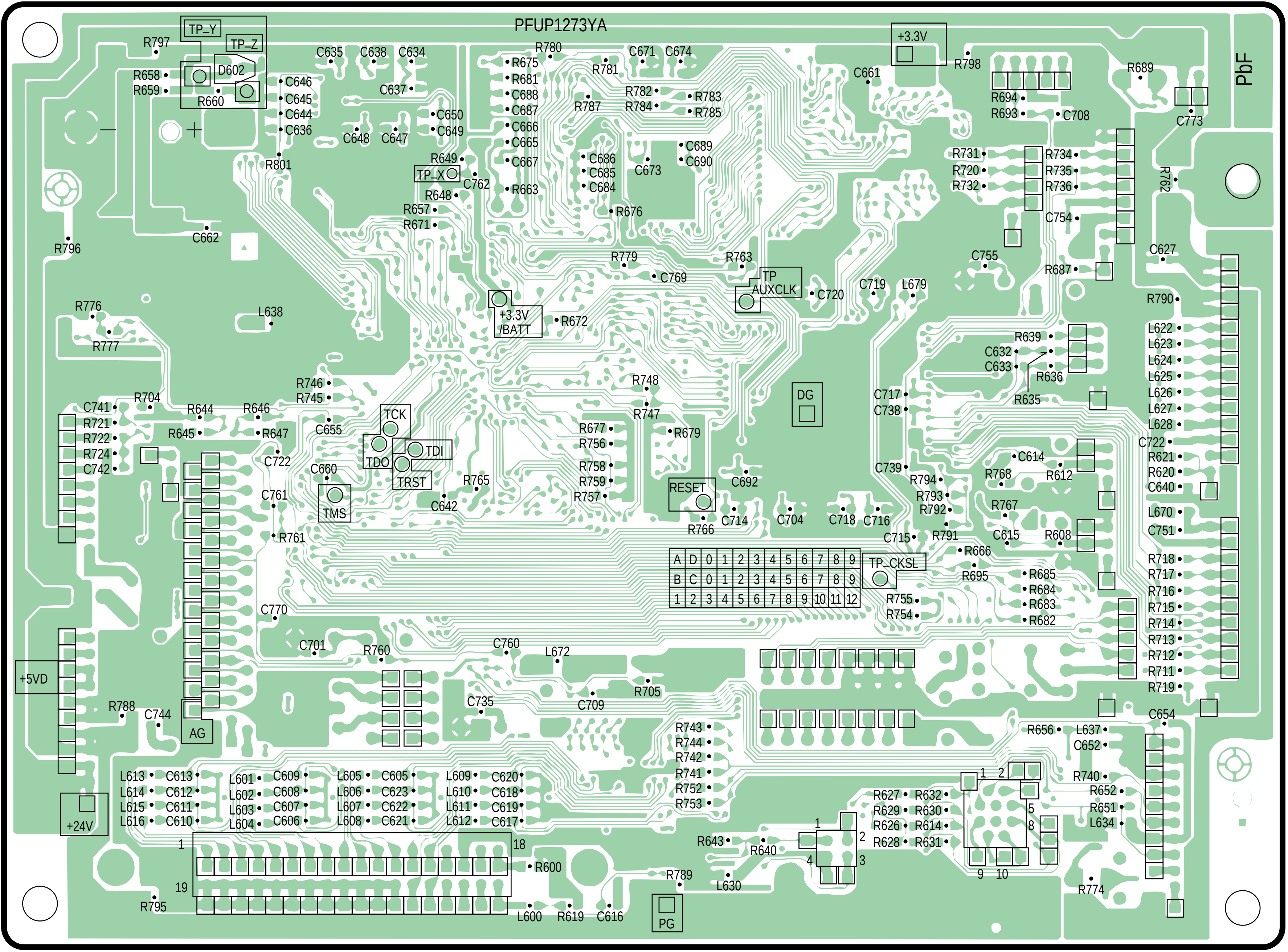
# Block Diagram


AC
Input
CN101
Input
Circuit
Rectifier
Circuit
C106
A
B
+
-
Kick-on
Voltage
Circuit
R110
R111
T101
Converter
Circuit
C
D
Q101
Surge
absorber
circuit
Surge
absorber
circuit
Control
Circuit
IC101
· O.C.L
· Over voltage
G
H
E
F
24V
Output
Circuit
5V
Output
Circuit
IC202
24V
PGND
5V
DGND
HTRON
A-B Voltage Wave Form
0
C-D Voltage Wave Form
0
E-F
G-H
Voltage Wave Form
0
Triac
SCR101
CN102
Heat Lamp
Error Detecting
Circuit
PC101
Phot Triac
Coupler PC102

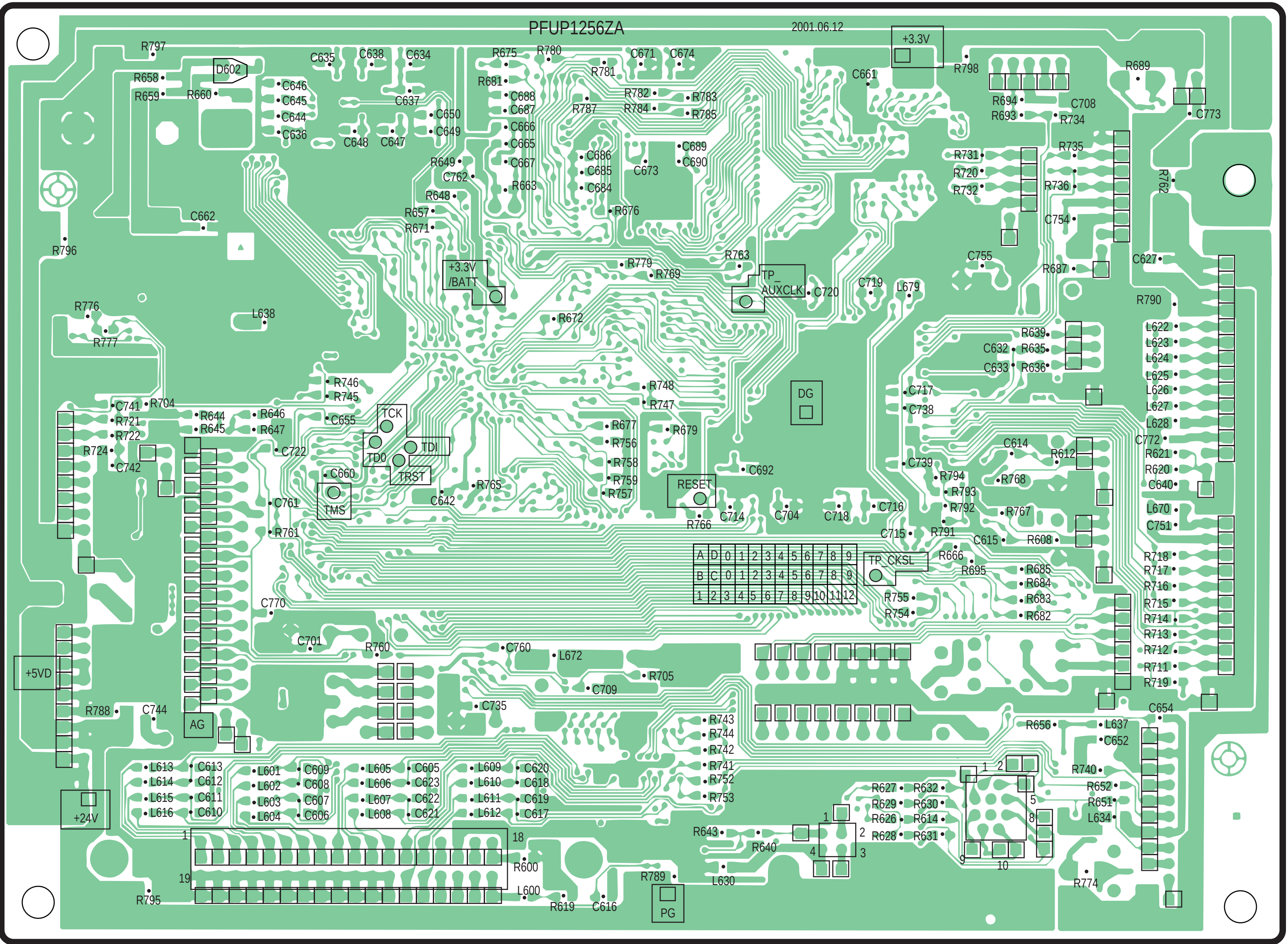
KX-FLB758PD: POWER SUPPLY BOARD: BLOCK DIAGRAM

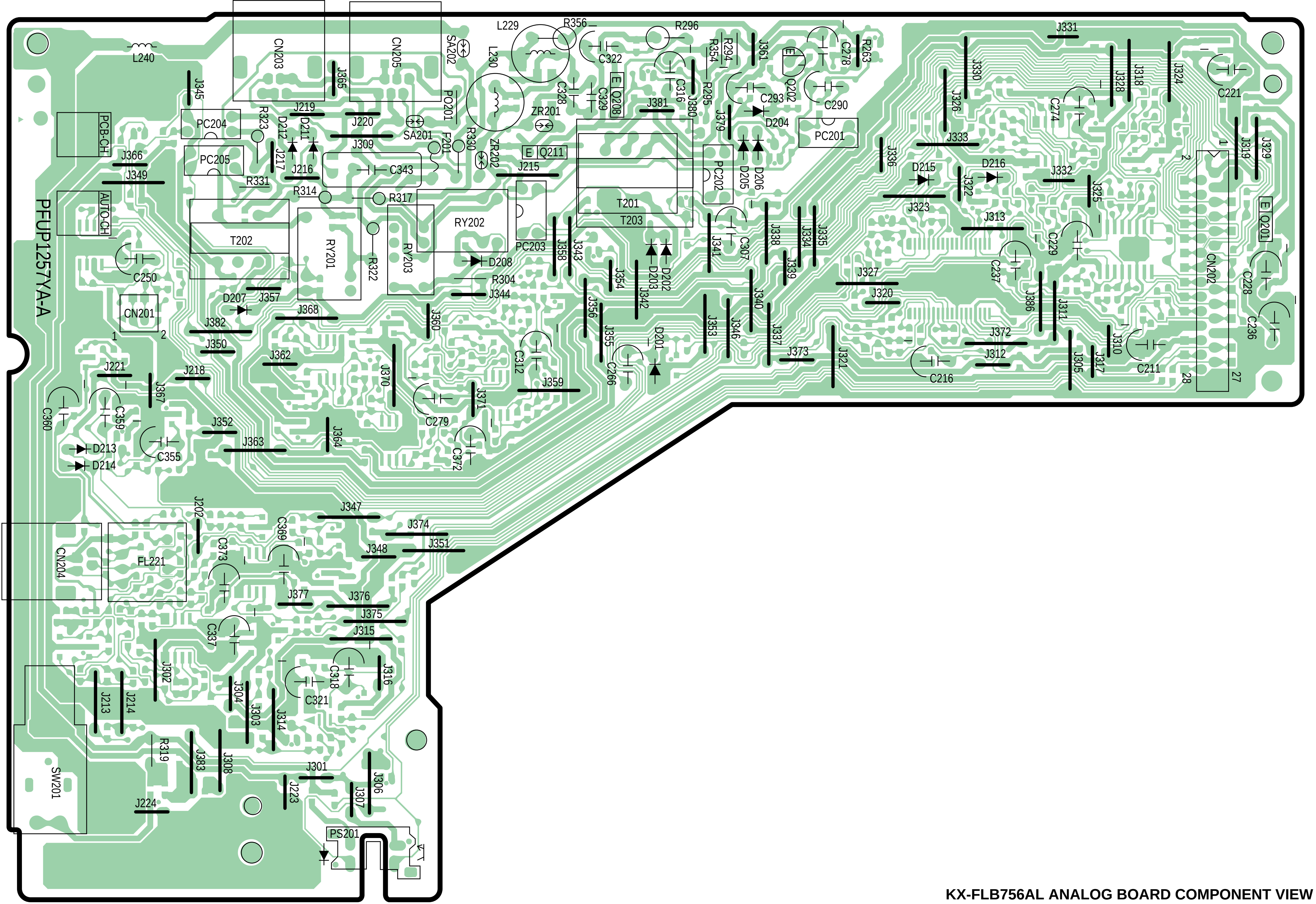

PbF
CN609
Q615
D604
CN610
+3.3V
RA605
RA606
C672
C675
R680
A B C 1 2 3 4 5 6 7 8 9 A B C
3.3V/BATT
J600
R690
F604
Q613
L639
C771
R688
Q614
D603
IC606
RA623
IC608
C763
IC615
IC614
IC603
BAT600
D608
CN613
CN612
R723
RA608
RA607
RA622
R674
R664
RA610
R665
R786
RA626
X601
C639
RA619
RA618
RA621
RA620
RA625
RA624
RA604
C663
IC605
C676
C626
C753
F605
C752
L678
C705
RA614
CN605
R733
L643
RA617
Q626
C740
Q627
Q622
Q623
Q624
Q625
CN606
R637
R638
Q610
R634
R633
C699
C656
IC604
X600
R673
R662
R661
C678
C664
C707
R691
R703
R700
R701
R728
R702
R727
R802
IC611
C750
Q621
Q620
Q631
C774
L653
C732
R624
R623
R625
Q609
C602
F603
Q604
R613
R610
R611
IC610
C698
C680
R751
R750
R749
C681
C682
R676
RA613
C643
C659
C657
C658
R662
D605
CN617
L642
CN614
CN603
C604
R618
Q608
R778
Q603
R606
C693
R686
RA612
C691
R738
L661
L659
L667
Q617
L640
C603
F602
R607
Q607
R770
R772
R609
R617
CN604
C601
R699
R771
R698
R697
R696
R773
F600
TP_IN
L686
L684
L682
L680
L685
L683
L681
DG
AUTO-CH
C694
C695
L649
PCB-CH
J600
L669
C758
L657
L658
L660
L673
L662
L664
L665
L663
L674
L666
R764
R800
R799
R708
R707
L654
L655
L656
L650
L651
L652
CN616
C721
C759
Q618
Q619
L644
R737
R725
R726
C743
L641
L647
Q616
L646
L645
R729
R730
C768
C767
C766
C765
C764
R667
CN611
C737
C736
CN601
R603
Q600
R601
F601
R605
R604
Q606
L620
L619
L618
L617
REF-CH
C712
IC609
C713
C702
C700
C703
C747
R769
C745
C724
C723
D606
R668
Q628
Q612
Q605
Q602
C600
D607
IC600
R739
R706
C710
R710
C711
L648
C734
IC613
IC612
C733
R709
C756
C757
R670
CN615
+24V
AG
L671
C653
R655
R654
D600
IC601
IC602
DA603
DA601
DA602
DA600
RA603
RA600
RA601
RA602
CN608
L636
R653
R615
R616
Q611
Q601
+5VD
C629
C631
C628
C630
DA604
L631
C624
L632
C625
L621
F606
R650
Q630
R602
CN602
CN607
R642
R641
D601
L668
R669
CN600
C651
R775
PG

KX-FLB756AL DIGITAL BOARD (PCB1) COMPONENT VIEW

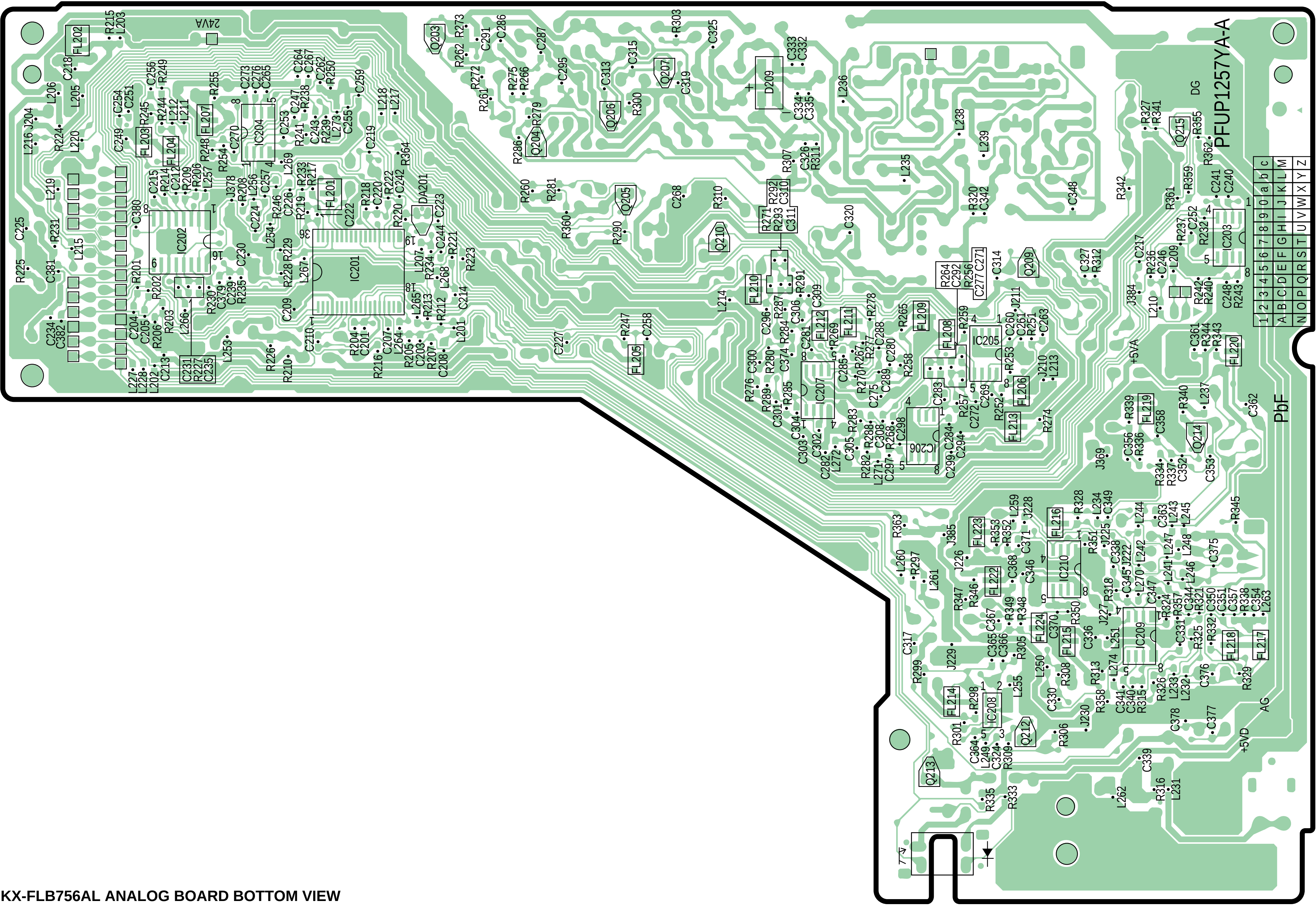

PFUP1273YA
PbF
TP_Y
TP_Z
D602
R797
R658
R659
R660
C635
C638
C634
C646
C645
C644
C636
C637
C650
C649
C648
C647
R801
R649
TP_X
C762
R648
R657
R671
R780
R675
R681
C688
C687
C666
C665
C667
R663
R781
C671
C674
R787
R782
R784
R783
R785
C686
C685
C684
C673
C689
C690
R676
+3.3V
R798
C661
R694
R693
C708
R689
C773
R731
R720
R732
R734
R735
R736
R762
C754
C755
R687
C627
R796
C662
R779
R763
C769
TP
AUXCLK
C720
C719
L679
R790
R776
R777
L638
+3.3V
/BATT
R672
R639
C632
C633
R636
R635
L622
L623
L624
L625
L626
L627
L628
R746
R745
R704
C741
R721
R722
R724
C742
R644
R646
R645
R647
C655
TCK
TDO
TDI
TRST
C722
C660
TMS
C761
R765
C642
R748
R747
R677
R756
R758
R759
R757
R679
DG
C717
C738
C722
R621
R620
C640
C614
R768
R612
C739
R794
R793
R792
R767
RESET
C692
R766
C714
C704
C718
C716
C715
R791
C615
R608
L670
C751
R761
R666
A D 0 1 2 3 4 5 6 7 8 9
B C 0 1 2 3 4 5 6 7 8 9
1 2 3 4 5 6 7 8 9 10 11 12
TP_CKSL
R695
R685
R684
R683
R682
R755
R754
R718
R717
R716
R715
R714
R713
R712
R711
R719
C770
C701
R760
C760
L672
R705
C709
C735
+5VD
R788
C744
AG
R743
R744
R742
R741
R752
R753
R656
L637
C652
C654
R740
R652
R651
L634
1
2
5
8
9
10
R627
R629
R626
R628
R632
R630
R614
R631
1
2
3
4
R643
R640
L613
L614
L615
L616
C613
C612
C611
C610
L601
L602
L603
L604
C609
C608
C607
C606
L605
L606
L607
L608
C605
C623
C622
C621
L609
L610
L611
L612
C620
C618
C619
C617
+24V
1
18
19
R600
R795
L600
R619
C616
PG
R789
L630
R774

**KX-FLB756AL DIGITAL BOARD (PCB1) BOTTOM VIEW**

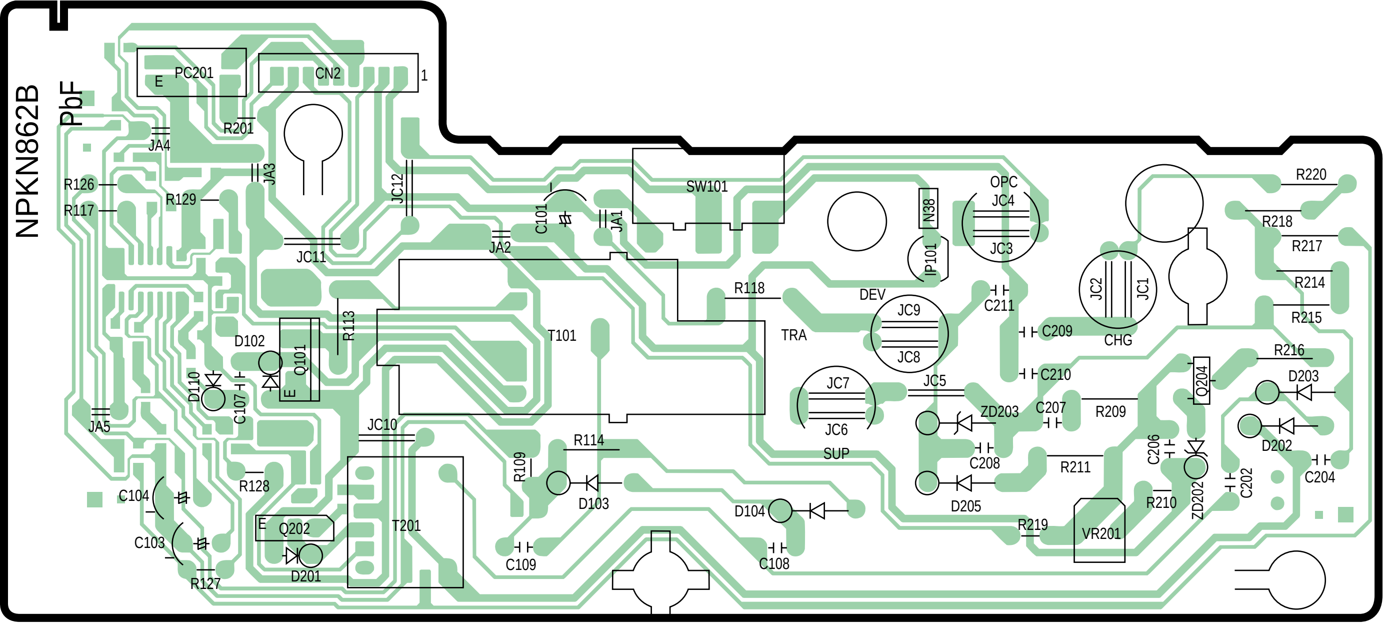

PFUP1256ZA
2001.06.12
+3.3V
R797
R658
R659
R660
D602
C635
C638
C634
C646
C645
C644
C636
C637
C650
C649
C648
C647
R675
R780
R681
C688
C687
C666
C665
C667
R663
R781
C671
C674
R782
R783
R784
R785
R787
C689
C690
C686
C685
C684
C673
R676
C661
R798
R694
R693
C708
R734
R689
C773
R731
R720
R732
R735
R736
R762
C754
R649
C762
R648
R657
R671
C662
R796
+3.3V
/BATT
R779
R769
R763
TP_
AUXCLK
C720
C719
L679
C755
R687
C627
R790
R776
R777
L638
R672
R639
R635
R636
C632
C633
L622
L623
L624
L625
L626
L627
L628
C772
R621
R620
C640
R746
R745
R748
R747
DG
C717
C738
C741
R704
R721
R722
R724
C742
R644
R645
R646
R647
C655
TCK
TDI
TDO
TRST
C722
C660
TMS
C761
R761
C642
R765
R677
R756
R758
R759
R757
R679
C692
RESET
C714
C704
C718
C716
R766
C739
C614
R612
R794
R768
R793
R792
R767
R791
C715
C615
R608
L670
C751
A
D
B
C
0
1
2
3
4
5
6
7
8
9
10
11
12
TP_CKSL
R666
R695
R685
R684
R683
R682
R755
R754
R718
R717
R716
R715
R714
R713
R712
R711
R719
C770
C701
R760
C760
L672
R705
C709
C735
+5VD
R788
C744
AG
R743
R744
R742
R741
R752
R753
R656
L637
C652
C654
R740
R652
R651
L634
R627
R632
R629
R630
R626
R614
R628
R631
R643
R640
L630
R789
PG
R774
L613
L614
L615
L616
C613
C612
C611
C610
L601
L602
L603
L604
C609
C608
C607
C606
L605
L606
L607
L608
C605
C623
C622
C621
L609
L610
L611
L612
C620
C618
C619
C617
+24V
1
18
19
R600
L600
R619
C616
R795
1
2
3
4
5
8
9
10


PFUP1257YA-A
L240
CN203
CN205
J365
SA202
L229
R356
L230
C322
R296
R354
R294
J361
C278
R263
J331
J330
J318
J324
J328
C221
J345
PO201
C328
C329
Q208
E
C316
J380
R295
Q202
C290
C293
D204
J326
C274
J379
J381
PC204
R323
D212
D211
J219
J220
SA201
ZR201
R330
PCB-CH
J366
PC205
J217
J309
F201
ZR202
Q211
J215
J216
C343
J349
R331
R314
R317
T201
T203
PC202
D205
D206
PC201
J333
J336
D215
J322
D216
J332
J325
J319
J329
CN202
Q201
AUTO-CH
T202
RY201
RY202
RY203
R322
PC203
J358
J343
C307
J341
J338
J334
J335
J323
J313
C229
C237
C228
C250
D208
R304
J344
D203
D202
J354
J342
J339
J327
J320
J386
J311
C236
CN201
D207
J357
J368
J360
J356
J353
J346
J340
J337
J372
J310
J317
C211
1
2
J382
J350
J362
J355
C312
D201
C266
J373
J321
J312
C216
J305
28
27
J221
J218
J367
J370
J359
J371
C279
C360
C359
J352
J363
J364
C372
D213
D214
C355
J202
J347
J374
C369
J348
J351
CN204
FL221
C373
J377
J376
J375
C337
J315
J302
C318
J316
C321
J213
J214
J304
J303
J314
R319
J383
J308
J301
J223
J306
J307
SW201
J224
PS201

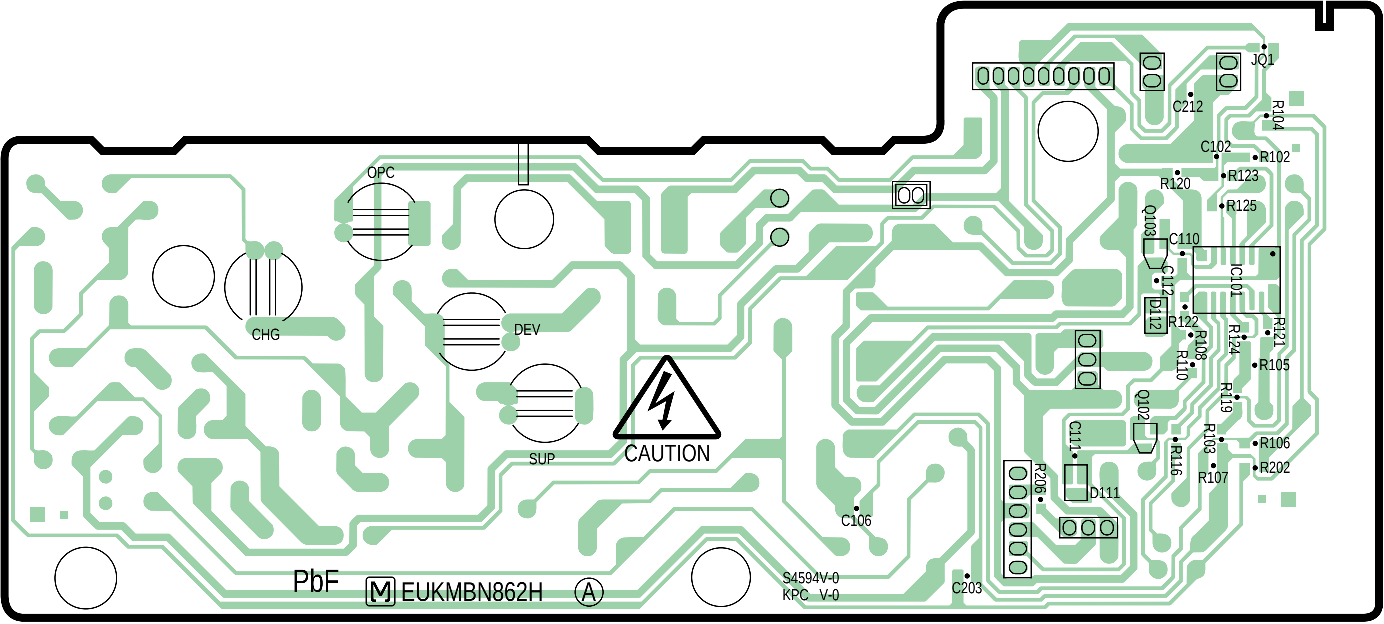
KX-FLB756AL ANALOG BOARD COMPONENT VIEW


PFUP1257YA-A
PbF
DG
AG
+5VA
+5VD
24VA
IC201
IC202
IC203
IC204
IC205
IC206
IC207
IC208
IC209
IC210
D209
DA201

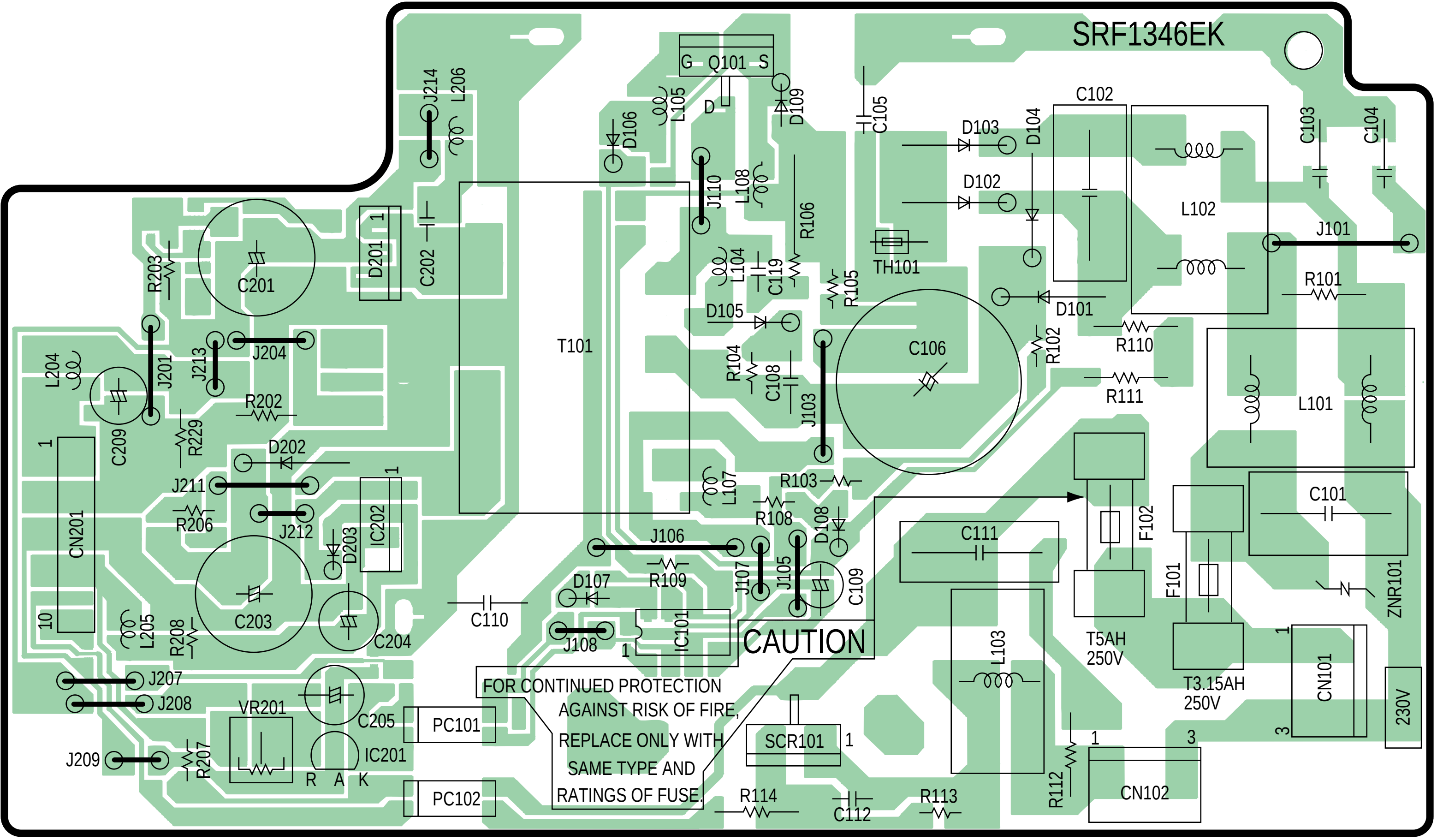
KX-FLB756AL ANALOG BOARD BOTTOM VIEW


NPKN862B
PbF
E
PC201
CN2
1
R201
JA4
JA3
JC12
R126
R117
R129
C101
JA1
SW101
N38
OPC
JC4
JC3
IP101
R220
R218
R217
R214
R215
JC2
JC1
CHG
JC11
JA2
R118
DEV
C211
C209
JC9
JC8
TRA
T101
R113
D102
Q101
E
D110
C107
JA5
JC7
JC6
SUP
JC5
C210
ZD203
C207
R209
R216
D203
Q204
D202
JC10
R114
R109
D103
C208
R211
D205
C206
ZD202
C202
C204
R128
C104
C103
R127
E
Q202
D201
T201
C109
D104
C108
R219
VR201
R210

**KX-FLB756AL HIGH VOLTAGE POWER SUPPLY BOARD (PCB4) COMPONENT VIEW**


JQ1
C212
R104
C102
R102
R123
R120
R125
Q103
C110
IC101
C112
D112
R122
R108
R124
R121
R110
R105
R119
Q102
C111
R103
R116
R106
R202
R107
R206
D111
OPC
CHG
DEV
SUP
CAUTION
C106
C203
PbF
M EUKMBN862H
A
S4594V-0
KPC V-0

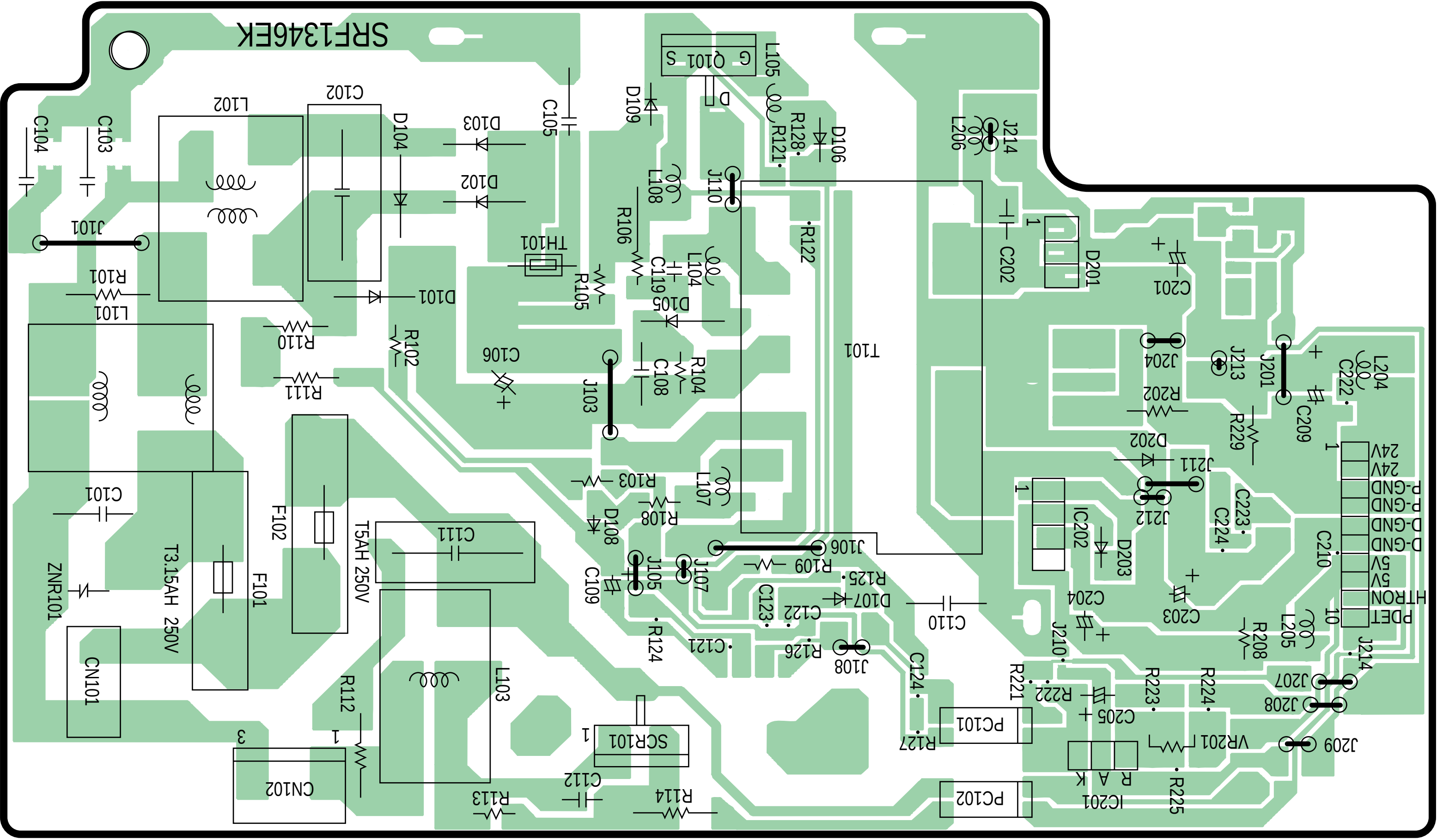
**KX-FLB756AL HIGH VOLTAGE POWER SUPPLY BOARD (PCB4) BOTTOM VIEW**


SRF1346EK
G
Q101
S
D
L105
D109
D106
J214
L206
C105
D103
D104
C102
C103
C104
J110
L108
R106
D102
L102
J101
D201
1
C202
C201
R203
TH101
L104
C119
R105
D101
R101
D105
T101
C106
R102
R110
J204
J213
J201
L204
C209
R202
R104
C108
J103
R111
L101
R229
D202
1
1
J211
R206
J212
IC202
D203
L107
R103
R108
D108
C101
F102
C111
CN201
J106
R109
D107
J107
J105
C109
F101
ZNR101
10
L205
R208
C203
C204
C110
J108
1
IC101
L103
T5AH
250V
T3.15AH
250V
1
CN101
3
230V
J207
J208
VR201
C205
PC101
SCR101
1
J209
R207
R
A
K
IC201
PC102
R114
C112
R113
R112
1
3
CN102

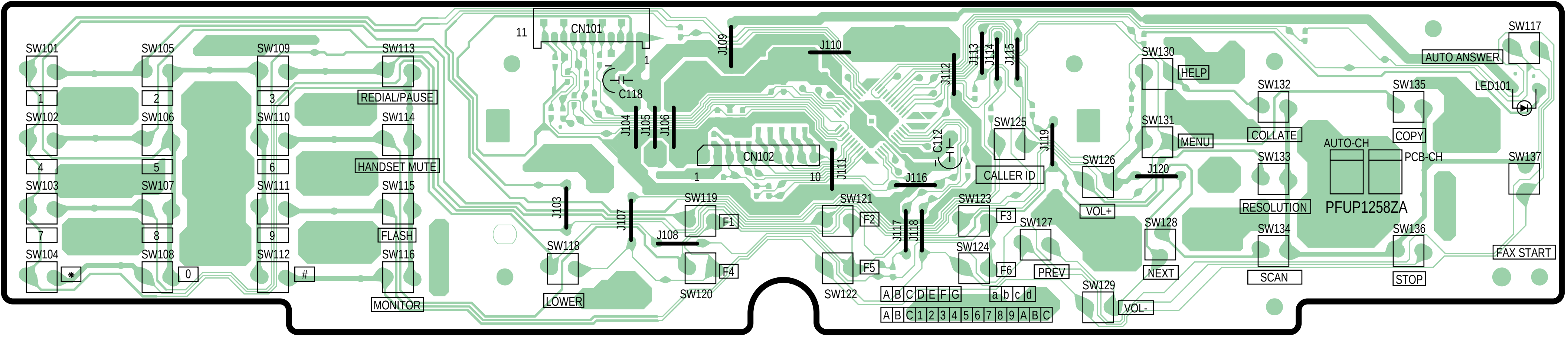
CAUTION

FOR CONTINUED PROTECTION
AGAINST RISK OF FIRE,
REPLACE ONLY WITH
SAME TYPE AND
RATINGS OF FUSE.

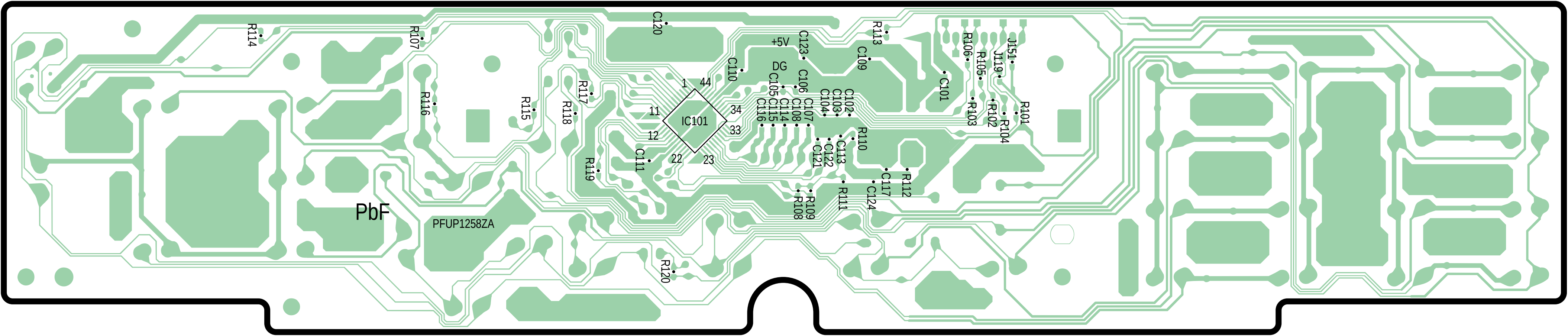
**KX-FLB756AL LOW VOLTAGE POWER SUPPLY BOARD (PCB5) COMPONENT VIEW**


SRF1346EK
C104
C103
L102
C102
D104
D103
D102
C105
D109
Q101
S
G
D
L105
R128
R121
D106
L206
J214
J110
L108
R106
TH101
R105
C119
L104
R122
C202
D201
C201
J101
R101
L101
D101
R110
R102
D105
C106
J103
C108
R104
T101
J204
J213
J201
L204
C222
R202
R229
C209
R111
D202
J211
24V
24V
P-GND
P-GND
D-GND
D-GND
5V
5V
HTRON
PDET
1
10
C101
R103
L107
R108
J212
IC202
C223
C224
D203
C210
ZNR101
T3.15AH 250V
F101
F102
T5AH 250V
C111
D108
J106
C109
J105
J107
R109
R125
D107
C110
C204
C203
L205
R208
C123
C122
J210
R124
C121
J108
R126
C124
J214
CN101
R112
L103
R221
R222
R223
R224
J207
J208
C205
PC101
R127
J209
VR201
SCR101
3
1
1
CN102
C112
R113
R114
PC102
IC201
K
A
R
R225

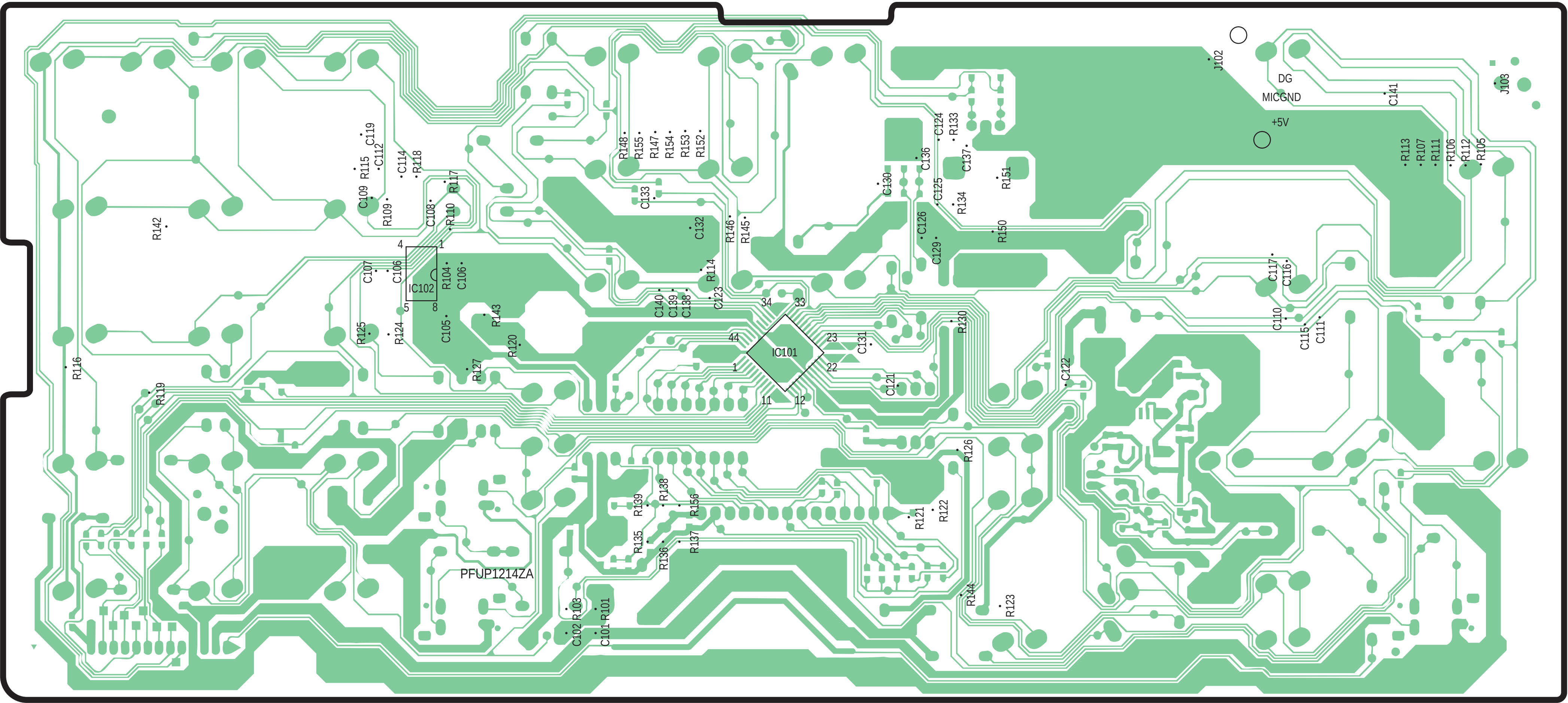
**KX-FLB756AL LOW VOLTAGE POWER SUPPLY BOARD (PCB5) BOTTOM VIEW**


SW101
1
SW102
4
SW103
7
SW104
*
SW105
2
SW106
5
SW107
8
SW108
0
SW109
3
SW110
6
SW111
9
SW112
#
SW113
REDIAL/PAUSE
SW114
HANDSET MUTE
SW115
FLASH
SW116
MONITOR
11
CN101
1
C118
J104
J105
J106
J103
J107
J109
J110
CN102
1
10
J111
SW118
LOWER
SW119
F1
J108
SW120
F4
SW121
F2
SW122
F5
J113
J114
J115
J112
C112
J116
J117
J118
SW123
F3
SW124
F6
SW125
CALLER ID
J119
SW127
PREV
A B C D E F G
a b c d
A B C 1 2 3 4 5 6 7 8 9 A B C
SW126
VOL+
SW129
VOL-
SW128
NEXT
SW130
HELP
SW131
MENU
J120
SW132
COLLATE
SW133
RESOLUTION
SW134
SCAN
AUTO-CH
PFUP1258ZA
PCB-CH
SW135
COPY
SW136
STOP
AUTO ANSWER
SW117
LED101
SW137
FAX START

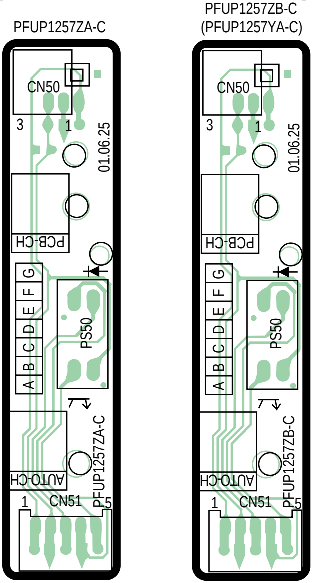
KX-FLB756AL OPERATION BOARD (PCB3) COMPONENT VIEW


R114
R107
C120
R113
+5V
C123
C109
J151
R106
R105
J119
C110
DG
C106
C105
C101
1
44
R117
R116
R115
R118
11
IC101
34
C116
C115
C114
C108
C107
C104
C103
C102
R103
R102
R104
R101
12
33
R110
C111
22
23
C121
C122
C113
R119
C117
R112
C124
R111
R109
R108
PbF
PFUP1258ZA
R120

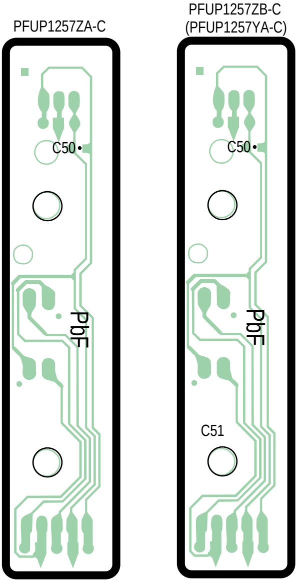
**KX-FLB756AL OPERATION BOARD (PCB3) BOTTOM VIEW**


J102
DG
MICGND
+5V
C141
J103
R113
R107
R111
R106
R112
R105
C124
R133
C136
C137
R151
C130
C125
R134
C126
R150
C129
R148
R155
R147
R154
R153
R152
C133
C132
R146
R145
R114
C123
C140
C139
C138
C119
R115
C112
C114
R118
C109
R109
C108
R117
R110
R142
4
1
IC102
5
8
C107
C106
R104
C106
C105
R143
R120
R127
R125
R124
R116
R119
34
33
44
IC101
23
1
22
11
12
C131
R130
C121
C122
C117
C116
C110
C115
C111
R126
R121
R122
R139
R138
R156
R135
R136
R137
PFUP1214ZA
C102
R103
C101
R101
R144
R123

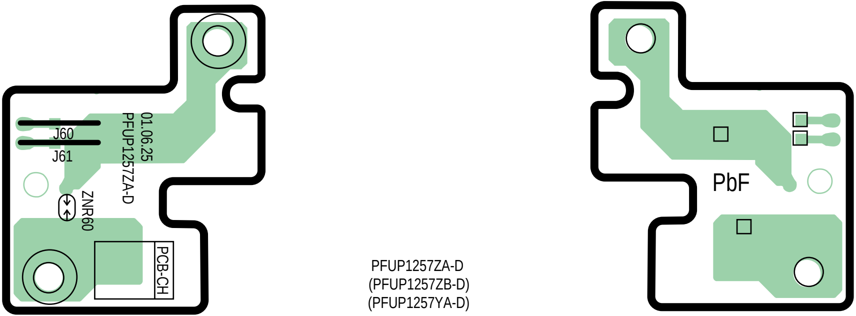
## (COMPONENT VIEW)


PFUP1257ZA-C
PFUP1257ZB-C
(PFUP1257YA-C)
CN50
3
1
01.06.25
PCB-CH
G
F
E
D
C
B
A
PS50
AUTO-CH
1
CN51
5
PFUP1257ZA-C
PFUP1257ZB-C

## (BOTTOM VIEW)


PFUP1257ZA-C
PFUP1257ZB-C
(PFUP1257YA-C)
C50
PbF
C51

# KX-FLB756AL SENSOR BOARD (PCB7)

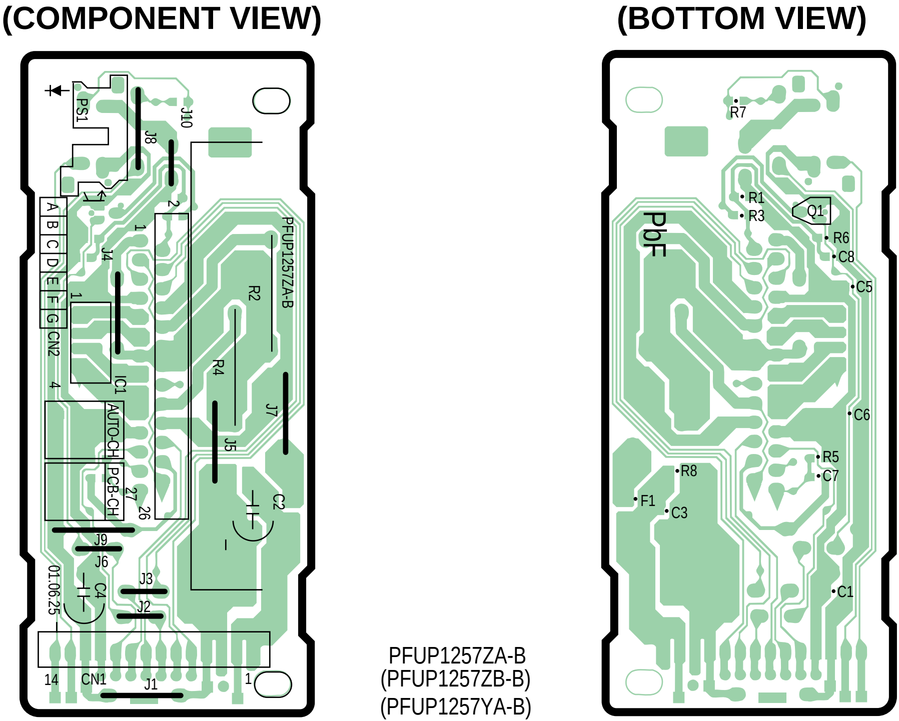

J60
J61
01.06.25
PFUP1257ZA-D
ZNR60
PCB-CH
PbF

(COMPONENT VIEW)

(BOTTOM VIEW)

PFUP1257ZA-D
(PFUP1257ZB-D)
(PFUP1257YA-D)

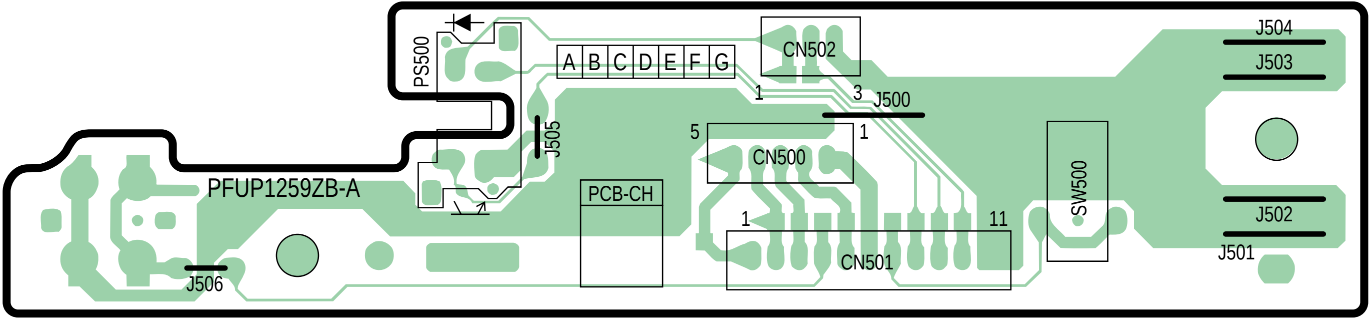
KX-FLB756AL VARISTOR BOARD (PCB8)


(COMPONENT VIEW)
(BOTTOM VIEW)
PS1
J10
J8
J4
1
2
A
B
C
D
E
F
G
CN2
1
4
IC1
AUTO-CH
PCB-CH
27
26
J9
J6
01.06.25
C4
J3
J2
14
CN1
J1
1
R2
R4
PFUP1257ZA-B
J7
J5
C2
R7
R1
R3
Q1
R6
C8
C5
PbF
C6
R5
C7
R8
F1
C3
C1

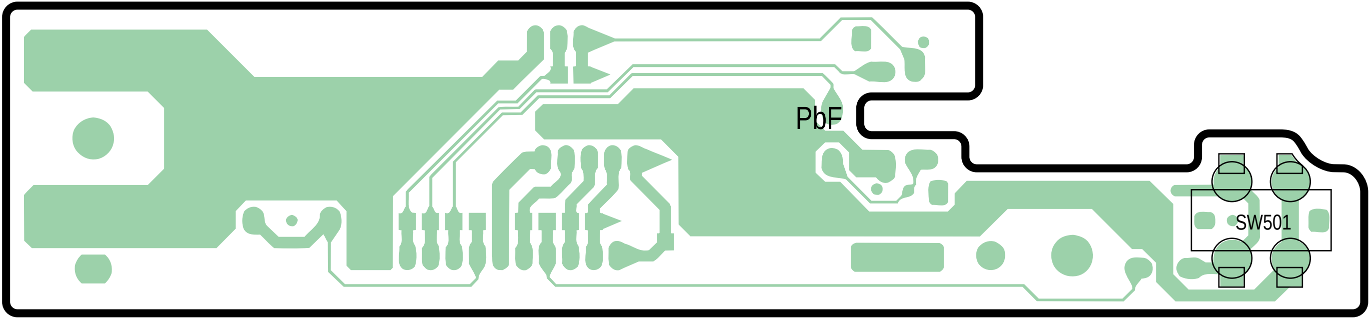
PFUP1257ZA-B
(PFUP1257ZB-B)
(PFUP1257YA-B)

**KX-FLB756AL MOTOR DRIVE BOARD (PCB6)**

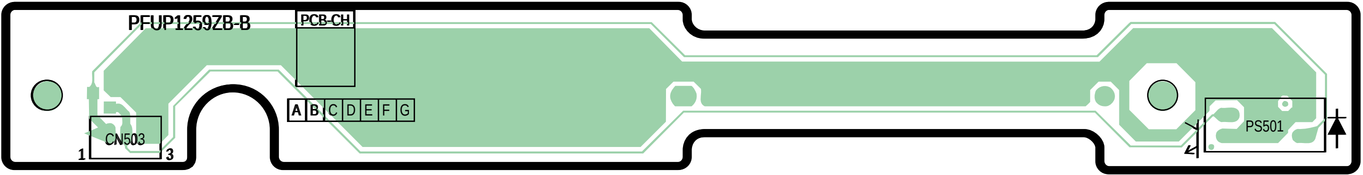
## (COMPONENT VIEW)


PS500
A
B
C
D
E
F
G
CN502
J504
J503
1
3
J500
J505
5
1
CN500
SW500
PFUP1259ZB-A
PCB-CH
1
11
J502
CN501
J501
J506

## (BOTTOM VIEW)

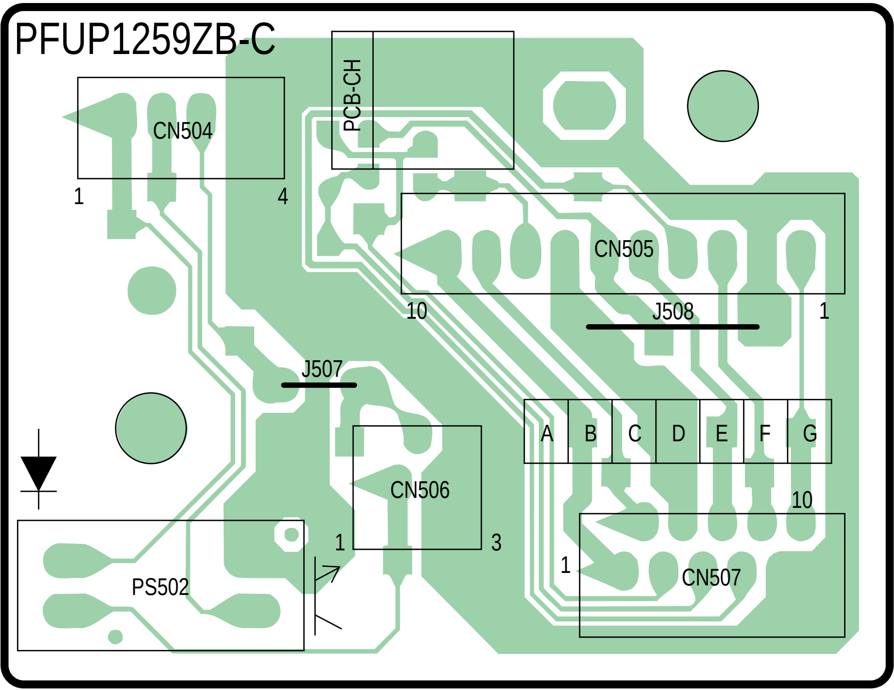


KX-FLB756AL ADF RELAY BOARD (PCB9)

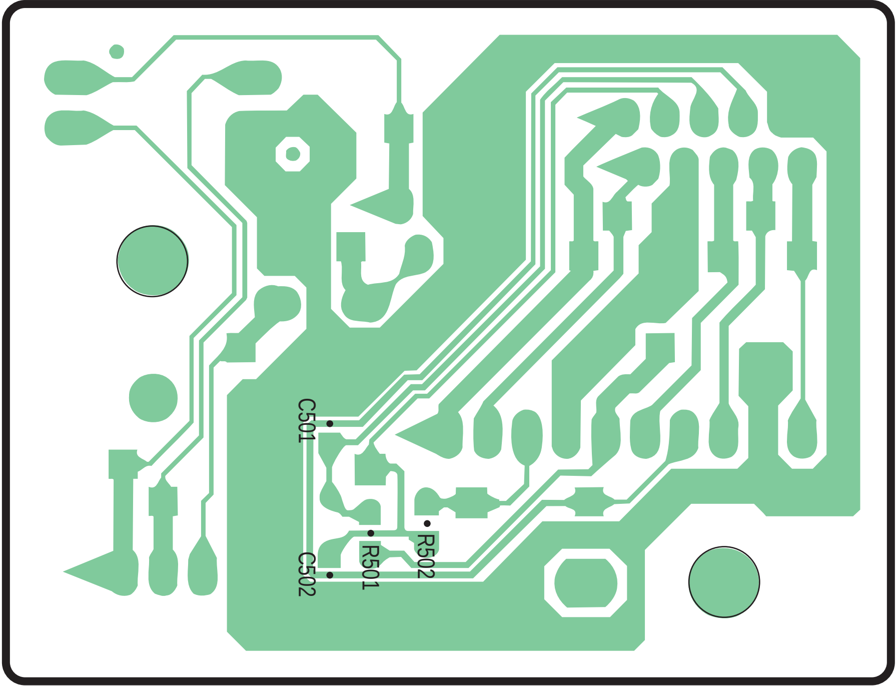

PFUP1259ZB-B
PCB-CH
A
B
C
D
E
F
G
CN503
1
3
PS501

KX-FLB756AL PF SENSOR BOARD (PCB10)

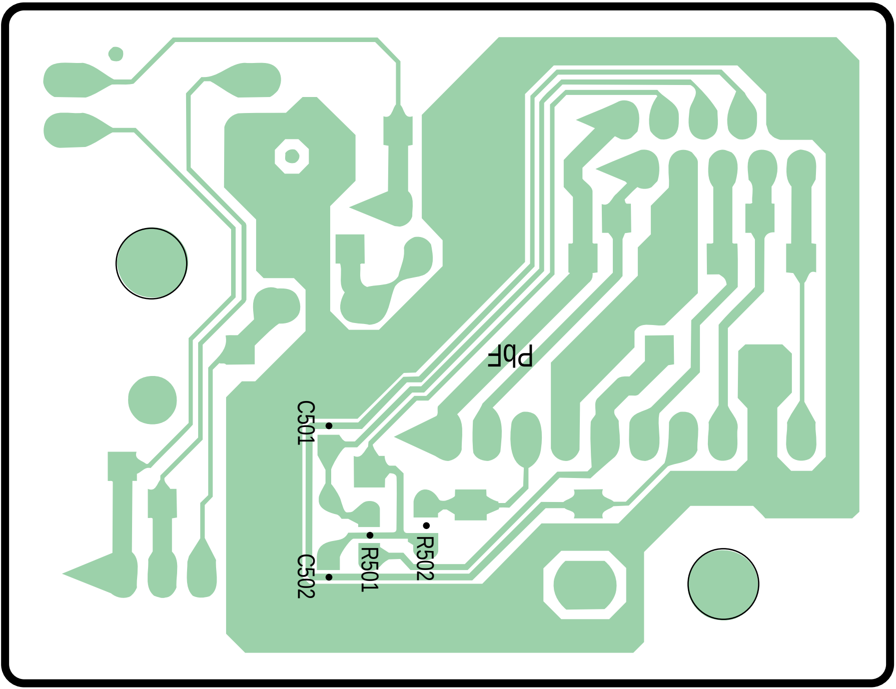
## (COMPONENT VIEW)


PFUP1259ZB-C
PCB-CH
CN504
1
4
CN505
10
1
J508
J507
A
B
C
D
E
F
G
CN506
1
3
10
1
CN507
PS502

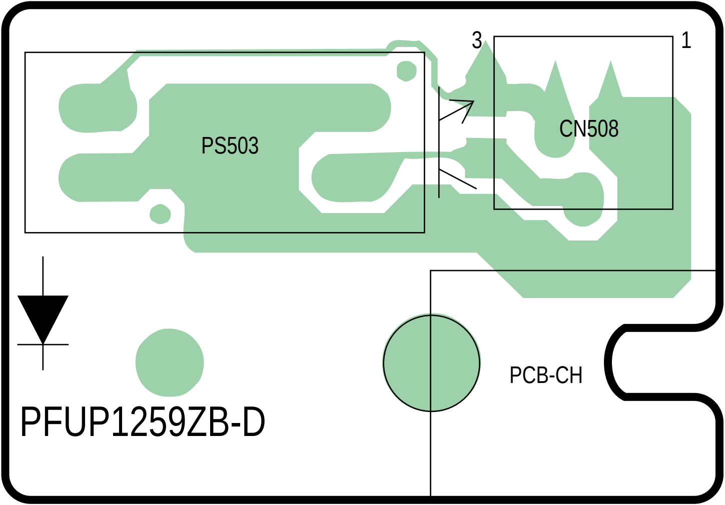
**KX-FLB756AL CIS RELAY BOARD (PCB11) COMPONENT VIEW**


C501
R501
R502
C502

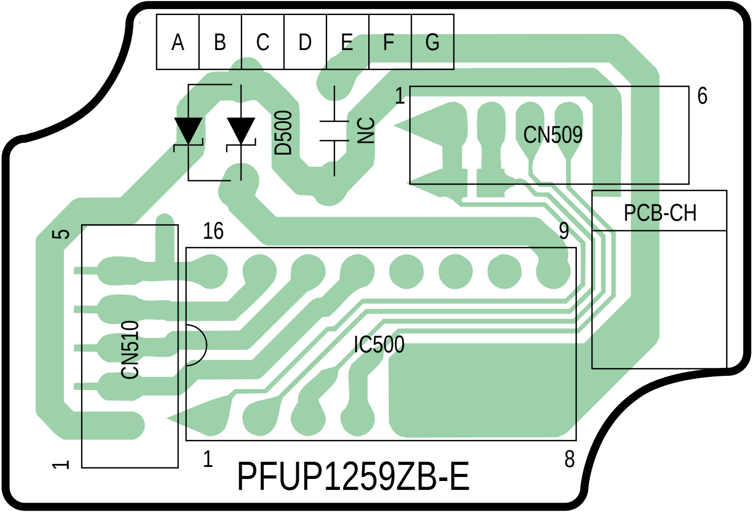
# (BOTTOM VIEW)


PbF
C501
C502
R501
R502

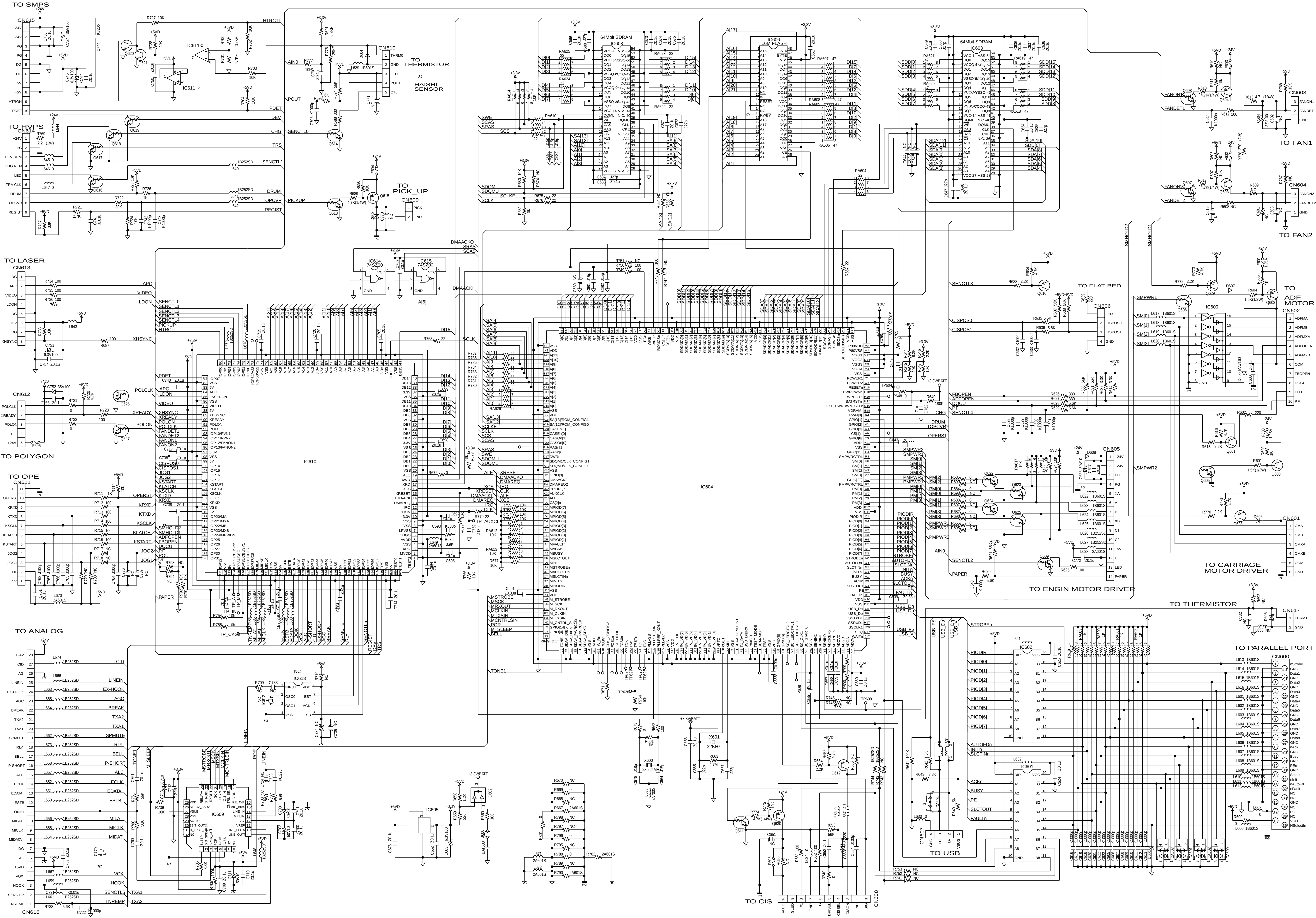
KX-FLB756AL CIS RELAY BOARD (PCB11) BOTTOM VIEW


3
1
PS503
CN508
PCB-CH
PFUP1259ZB-D

**KX-FLB756AL CIS SENSOR BOARD (PCB12)**


A
B
C
D
E
F
G
D500
NC
1
6
CN509
PCB-CH
5
16
9
CN510
IC500
1
1
8
PFUP1259ZB-E

KX-FLB756AL SCAN MOTOR DRIVER BOARD (PCB13)


TO SMPS
CN615
TO HVPS
CN614
TO THERMISTOR & HAISHI SENSOR
CN610
TO PICK_UP
CN609
TO LASER
CN613
TO POLYGON
CN612
TO OPE
CN611
TO ANALOG
CN616
IC611
IC608
64Mbit SDRAM
IC606
16M FLASH
IC603
64Mbit SDRAM
IC614
74SZ00
IC615
74SZ02
IC610
IC604
IC613
IC609
IC605
TO FAN1
CN603
TO FAN2
CN604
TO FLAT BED
CN606
TO ADF MOTOR
CN602
IC600
TO CARRIAGE MOTOR DRIVER
CN601
TO ENGIN MOTOR DRIVER
CN605
TO THERMISTOR
CN617
TO PARALLEL PORT
CN600
IC602
IC601
TO USB
CN607
TO CIS
CN608
X601
32KHz
X600
28.224MHz